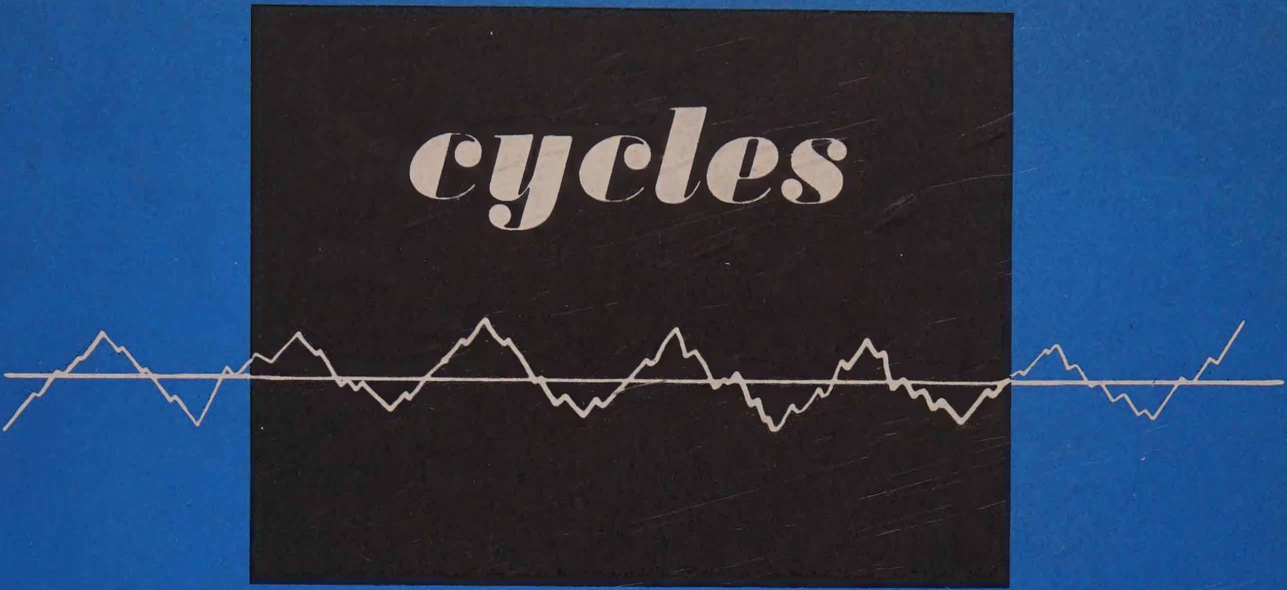
cycles



July 1959

FOUNDATION FOR THE STUDY OF CYCLES
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CYCLES

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THE OFFICIAL BULLETIN OF THE FOUNDATION FOR THE STUDY OF CYCLES

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Program

Our program is (1) *to collect* as many examples as possible of rhythmic fluctuations in all fields of natural and social science, (2) *to measure* each of these rhythms with the greatest possible accuracy, (3) *to record* the latitude, longitude, wave length, wave shape, timing, and strength of each cycle in such a way that any qualified worker can reproduce the work and obtain the same results, and so that he can, if he wishes, take issue with the methods used by the worker to isolate, definitize, and evaluate the cycle, (4) *to stimulate* and help others to do these same things, (5) *to print* the results of all this research, (6) *to arrange*, collect, catalog, and group the cycles thus discovered and definitized, (7) *to discover the laws* which govern the operation of cycles, and (8) *to deduce* the *cause* or causes of cycles—all for the benefit of mankind.

Cycles IS PUBLISHED BY THE FOUNDATION FOR THE STUDY OF CYCLES MONTHLY AT THE FOUNDATION'S OFFICE AT EAST BRADY, PENNSYLVANIA. SUBSCRIPTION RATE $10.00 A YEAR. ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE AT **East Brady, Pennsylvania**, WITH ADDITIONAL ENTRY AT DEXTER, MICHIGAN. PUBLICATION OFFICE, 680 WEST END AVENUE, NEW YORK 25, NEW YORK.

Director's Letter

Dear Member:

The Past 28 Years--and a Peek into the Future

I would like to review the achievements of the Foundation since its inception, 28 years ago this month, and try to glimpse what is ahead for us—and you.

Our history, curiously enough, divides into three parts, each 9 1/3 years long.

The First Period

For the first third of our life we were merely a paper organization. This phase began in July 1931 with the First International Conference on Biological Cycles held, with the blessing of the Canadian Government, at Matamek, Quebec. It ended 9 1/3 years later with the reorganization of our Committee and the adoption of the name *Foundation for the Study of Cycles* in November 1940. This period might be called one of gestation.

The Second Period

The second third of our life, from November 1940 to March 1950, was spent largely in doing research for large corporations.

This period was quite unsatisfactory because the results of our research got buried in corporation archives instead of being published for the use of other cycle scientists and for the public welfare.

Of course this had to be, as the figures we dealt with were often extremely confidential—but this fact did not help the cause of science, or of cycles.

It would amuse you to know how very secretive some firms are, even in this enlightened age. For example, a Vice President of Accounting of a large steel company told me that he had never been permitted to see the sales figures of his own company! Every once in a while, when presenting the results of research to top management, I would be warned not to use actual figures as these were known only to the president and one or two others in the room! Happily this situation is changing, but even so, you can hardly blame a company that has paid good money for valuable facts for not wanting these facts to come into the hands of competition. But, although the restriction was reasonable, it did not change the fact that our work—scientifically—was partly nullified.

Even worse, we found ourselves being shut out of certain fields of enquiry by the moral obligations generated. If, for example, we were hired to study the cycles in, let us say the steel industry or in lumber, we felt morally bound never to publish anything about our discoveries, no matter how large a segment of the economy might be involved.

And finally there were personal considerations. I got tired of spending a third of my time as a salesman. I got tired of battering my way past supercilious, arrogant, and snooty secretaries to see the Great Man. I have a certain amount of self respect. Eventually I reached the place where I said, "I don't have to take it!" And from then on I didn't.

Of course the experience was not wholly bad, either for the Foundation or for me. The Foundation was kept alive; I learned a lot about cycles. Moreover, although the $3,876 a year the Foundation was able to pay me was peanuts compared to the $55,000 a year I had grossed as a consultant during the tail end of the depression, it did partly cover my living expenses and was very gratefully received.

Then too, the experience had its lighter moments. For example, I remember the greeting of the president of a multi-million dollar rug company--the second largest in the industry, I believe:

"Do we owe you any money?" he said.

"No," I answered, somewhat taken aback.

"Vell den," he said, "You vont to sell me someting! *Vot is it*?"

And there was the girl I've told you about before who said, "Mr. Blank isn't interested."

"What is it that Mr. Blank isn't interested in?" I asked, as my engraved card had nothing on it but my name.

"Mr. Blank isn't interested in anything," she answered!

I may have made this second period sound too bleak from the scientific standpoint. There were some scientific achievements. Perhaps I should tabulate them.

1. Many of the important scientific societies appointed advisors to help us with our work.
2. We published a Directory of all known living cycle scientists, and gave it widespread circulation so that cycle students in one field could know their conferees in other fields.
3. We effected a tenuous (and somewhat arid) affiliation with Columbia University. The chief advantages of the relationship turned out to be (a) some warm friendships, (b) housing in a university building (at *our* expense!), and (c) the privilege of eating lunch at the Faculty Club!
4. We founded a library, now the largest (as far as I know) devoted exclusively to cycle literature.
5. I helped Ellsworth Huntington—Yale's great climatologist and geographer—write two or three chapters on cycles in his *magnum opus, Mainsprings of Civilization*—a service for which he offered me co-authorship, (which I of course refused.) These chapters increased our status and helped to establish cycles as a science.
6. Ed Dakin and I found time to write a book about cycles. This book, called *Cycles—The Science of Prediction*, sold 36,000 copies, was on the best seller list for 17 weeks, and did much to extend the knowledge of the subject. (Don't send for it. It's out of print.)
7. We inaugurated the membership plan.
8. The Foundation published four technical monographs, including my 40 page paper, *Cycle Analysis:*

The Moving Average.

9. We published the following reports:

a. Cycles in Economic Data: A Digest; Wholesale Commodity Prices and Agricultural Prices.
b. Cycles in Weather: Rainfall in the United Provinces, India.
c. Cycles in Tree Ring Widths: Lukachukai District, Arizona. Hint of a 6-Year Rhythm.
d. Cycles in Tree Ring Widths: Lukachukai District, Arizona. Hint of a 17 3/4-Year Rhythm.
e. Cycles in Tree Ring Widths: Lukachukai District, Arizona. Hint of a 54-Year Rhythm.
f. Cycles in Industrial Production: General Electric Company. The 6-Year Rhythm in Orders Received.
g. Cycles in Wholesale Prices: Cotton
   (a) War and Post-War Behavior.
   (b) The 6-Year Rhythm.
h. Cycles in Industrial Production: Viscose Rayon Filament Yarn Production. The 2-Year Rhythm, the 2 3/4-Year Rhythm, the 3 1/2-Year Rhythm, the 6-Year Rhythm, and the Trend.
i. A List of Rhythms Variously Determined and/or Alleged.
j. Putting Cycles to Work in Science and Industry. (An address by E. R. Dewey to Sigma Xi at McGill University.)

10. We reprinted and distributed thirty or more papers by various scientists. These papers had to do with cycles in all aspects of natural and social science.

This second 9 1/3 year period might be called the period of incubation.

The Third Period

Our third period began in the spring of 1950 with (a) the renunciation of research for others (except under special circumstances where we were permitted to publish the results of the research), (b) the active prosecution of research, and (c) the publication of the results of this research in the magazine *CYCLES* and in a more formal publication started a year later called the *JOURNAL OF CYCLE RESEARCH*.

This third period may be characterized as the period of infancy. In it, we, like any other infant, have learned something of how little we know!

This period was high-lighted by the following achievements:

1. Our membership plan has prospered so that, as of December 31, 1958 we had 9,108 members.

2. Chapters, or groups of Foundation members, have sprung up spontaneously in various parts of the country. As Allan Gregg, Vice President of the Rockefeller Foundation and, until his death, a member of the Committee of the Foundation, once said to me, "It can't be all leadership. You need followership. You will have to create this as you go along."

3. We are no longer a one man organization. Our far flung directorate has been supplanted by an active and devoted executive committee that meets at least quarterly and actively controls our operations.

4. I found time to write a text book on cycle analysis. Nearly two hundred people have availed themselves of what this book has to offer.

5. Money has been secured for grants to assist research—to the great improvement of our knowledge of cycles.

6. Research on the part of others has been stimulated by personal conference, correspondence, and rewards of one sort or another, such as the gold medal bestowed by the Foundation upon John Nelson of R. C. A. Communication for his contributions to our field.

7. And finally, our own contributions to the science of cycles have been considerable. These consist of the following: (a) The discovery of scores of cycles hitherto unknown to science, (b) the development of several important new techniques for cycle analysis, (c) the refinement of the cycle work of others, (d) the creation of the two vehicles for publication named above, namely *Cycles* and the *Journal of Cycle Research,* (e) the publication and/or reporting of a large amount of cycle research of others, (f) the reprinting of important out-of-print cycle books and articles, (g) the translation and printing of certain important foreign cycle material, and (h) the organizing, cataloging, and indexing of all this material to provide the foundation for a new science.

A partial list of the contributions, listed year by year, follows:

Some of the Contributions of the Foundation for the Study of Cycles to the Science of Cycles During the 9 1/3-Year Period, March 1950--July 1959

1950

Inaugurated Cycles--A Monthly Report
Isolated, definitized, and reported: A 9-year rhythmic cycle in new members of the Presbyterian Church, 1826-1948.
Published: An account of the Yeatman-Lane modified moving percentage; the Lane weighted section moving average.
Isolated, definitized, and reported: A 22 1/5-year rhythmic cycle in sunspots, alternate cycles reversed, 1749-1949.
Discovered: Several other cycles in sunspots with alternate cycles reversed. These have not yet been reported.
Discovered, isolated, definitized, and reported: A 6-year rhythmic cycle in sunspots, alternate cycles reversed, 1749--1949.
Discovered, isolated, definitized, and reported: A 6-year rhythmic cycle in automobile sales, 1893--1949.
Published: An account of a 41-month rhythmic cycle in stock prices, 1901--1950, discovered by Chapin Hoskins.
Isolated, definitized, and reported: An 18-year rhythmic cycle in sunspots with alternate cycles reversed, 1749-1949.
Definitized: The length of a 9.6-year rhythmic cycle in the abundance of lynx in Canada, 1735-36--1948-49.
Published: An account of a 29 1/2-day rhythmic cycle in the births of infants, 1939--1944, discovered by Curtis Jackson.
Discovered: Rhythmic cycles of 20 or 21 years and 35 or 36 years in the abundance of Lynx in Canada, 1735-36--1948-49.
Discovered, isolated, definitized, and reported: An 8-year cycle in cigarette production, 1880--1948.

Made: A multiple harmonic analysis of cotton prices 1731-32--1949-50, to obtain hints of cycles 5 1/2 years long or longer. Reported upon length and strength of the 36 3/4-, 41-, 52 1/2-, 57-, 66 1/2-and 90-year average cycles thus found.

Reprinted: A discussion of the seasonal cycles in intellectual interest, insanity, suicide, and crime discovered by Ellsworth Huntington.

Discovered, isolated, definitized, and reported: The 6-year rhythmic cycles in each of the following phenomena:

Barometric pressure, New York City, 1897--1949.
Standard and Poor's industrial stock price index, 1897--1948.
Tree rings at Fairlee, Vermont, 1897--1934.
Sunspots with alternate cycles reversed, 1897--1948.
Cotton prices at New York, 1900--1947.
Rayon production, 1910--1949.
Cotton production, 1897--1948.
Shipments of American Viscose Corp., in pounds, 1912--1948.
Shipments of Bethlehem Steel Co., in tons, 1905--1948.
Sales of E. I. du Pont de Nemours and Co., 1925--1948.
Sales of Inland Steel Co., 1921--1948.
Sales of Jones & Laughlin Steel Corp., 1923--1948.
Sales of Monsanto Chemical Co., 1927--1948.
Sales of Montgomery Ward & Co., 1921--1948.
Sales of Pittsburgh Plate Glass Co., 1905--1948.
Sales of Allis Chalmer Mfg. Co., 1913--1948.
Sales of Armour & Co., 1901--1948.
Production of Republic Steel Co., 1930--1948.
Sales of Sears Roebuck & Co., 1907--1948.
Sales of Youngstown Sheet & Tube Co., 1923--1948.
Sales of Wilson & Co., 1927--1948.
Income of Continental Oil Co., 1930--1948.
Sales of National Lead Co., 1930--1948.
Sales of Swift & Co., 1897--1948.
Sales of Armco Steel Corp., 1901--1948.
Sales of B. F. Goodrich Co., 1912--1948.
Sales of Goodyear Tire & Rubber Co., 1926--1948.
Sales of Procter & Gamble Co., 1913--1948.
Revenue of Seaboard Air Lines, 1901--1947.
Income of Standard Oil Co. of Calif., 1926--1948.
Sales of U. S. Rubber Co., 1901--1947.

Published: An account of 3- to 3 1/2-year cycles in business activity, 1790--1946, isolated by W. C. Yeatman.

Published: An account of lunar, 4-month and 6-month cycles in the electric potential of trees, discovered by H. S. Burr.

Published: An account of a study of compound cycles made by W. C. Yeatman.

Discovered, isolated, definitized, and reported: A 17 3/4-year rhythmic cycle in commercial failures, 1857--1949.

Published: An account of the daily cycle in the temperature of birds, discovered by S. Prentiss Baldwin and S. Charles Kendeigh.

Reprinted: The out-of-print paper, "Biological Rhythms and Cycles" by Nathaniel Kleitman. (Foundation Reprint No. 32)

Discovered, isolated, definitized, and reported: A 57-year rhythmic cycle in international war, 1750--1943.

1951

Discovered, isolated, definitized, and reported: A 57-year rhythmic cycle in international war, 1750--1943.

Reprinted: The Presidential Address of R. H. Wheeler, University of Kansas, relative to cycles and to the effect of climate on human behavior in history.

Discovered, isolated, definitized, and reported: A 22.7-month rhythmic cycle in the sales of "Company G," 1904--1950.

Discovered, isolated, definitized, and reported: A 22 1/7-year rhythmic cycle in international war, 1400--1943.

Discovered, isolated, definitized, and reported: A 33-month rhythmic cycle in the sales of "Company G," 1904--1950.

Published: An account of various rhythmic wildlife cycles discussed at the First International Conference of Biological Cycles, 1931. More particularly a 9- to 10-year hawk-owl cycle; a 6 1/2-year grouse cycle; a 9- to 10-year rabbit cycle; a 4-year West Coast salmon cycle; 12-year and 30-year cycles in certain insects in Germany.

Brought up to date: The 33-month cycle in the ton-miles of the Canadian Pacific Railroad study, made in 1942.

Published: Raymond H. Wheeler's Index of International War and Index of Civil War 599 B.C.--A.D. 1943.

Discovered, timed, and reported: 23 additional rhythmic cycles in the sales of "Company G," 1904--1943.

Published: An account of the cycles in influenza discovered by the Commission of Acute Respiratory Diseases.

Reprinted: An out-of-print book by W. M. Flinders Petrie, The Revolutions of Civilization.

Brought up to date: The 33-month cycle in residential building construction study made in 1939 by Professors F. A. Pearson, W. I. Myers and G. E. Brandow.

Reported: The length and strength of the 20.9-, 23.22-, 26.13-, 29.86-, and 34.83-year cycles in cotton prices, discovered as a result of the multiple harmonic analysis of cotton prices, made in 1950.

Isolated, definitized, and reported: A 9-year rhythmic cycle in new members of the Congregational Church, 1857--1950.

Published: The synodic and sidereal periods of all the planets.

Reprinted: "What may be Learned from Stumps" by E. L. Moseley.

Published: An account of daily rings in cotton fibers.

Discovered and timed: An 18 1/3-year rhythmic cycle in residential building construction, 1856--1950.

Definitized: The 12-month cycle in residential building construction contracts.

Discovered, isolated, definitized, and reported: A 9.6-year rhythmic cycle in the acreage of wheat, 1866--1949.

Discovered and reported: The advantages of the use of color in periodic tables.

Published: A 200-year calendar for the use of cycle students.

Published: An account of a 22-year cycle in the advertising efficiency of the Lydia E. Pinkham Medicine Co., 1888--1950, discovered by Charles H. Pinkham.

Published: An account of the Metonic and the Callippic cycles, discovered 432 B. C. and 330 B. C., respectively.

Published measurements of tree ring widths in the Lukachukai District of Arizona, 54 B. C.--A. D. 1939 by H. S. Gladwin.

Discovered, isolated, definitized, and reported: A 9.2-year cycle in common stocks, 1871--1950.

Brought up to date: The 9.18-month cycle in the ton-miles of the C. P. R. which had been discovered, isolated and definitized in 1942.

Brought up to date: The 18 1/3-year cycle in building construction that had been definitized in 1944.

Published: An account of D. Justin Shove's research in respect to early (B.C.) sunspot data.

Computed and Reported: Conversion factors to adjust price factors to a gold basis.

Published: An account of a 37-year cycle in the time variation between sunspot maxima, discovered by H. W. Clough.

Reported: 10 rhythmic cycles in stock prices, 1871--1943, that had been discovered, isolated, definitized and synthesized in 1944.

Published: An account of 19 cycles in stock prices, 1854--1951, as discovered and reported by Vedder Hughey.

Discovered, isolated, definitized, and reported: A 19.4-year cycle in rail stock prices, 1831--1950.

Inaugurated: The Journal of Cycle Research.

Discovered, isolated, and definitized: (1) The war cycles; (2) The 6-year rhythmic cycle in cotton prices, 1731--1949.

Published: A paper by A. G. Huntsman on the cause of the 9- or 10-year salmon cycle.

Developed and published: An account of an original form of periodogram.

1952

Discovered, isolated, and reported: An 8 1/6-year rhythmic cycle in industrial stock prices, 1871--1951.

Published: Article by Hideo Nishioka on 700-year rhythmic cycles in climate and in the aurora borealis from 1300 B. C.

Studied and reported: Rhythmic cycles in random numbers.

Published: An account of a 9-year cycle in social disease discovered by Alvin Johnson.

Discovered and reported: The fact that the so-called 37-year cycle in Chinese earthquakes, A. D. 200--1865 is more nearly 35.2 years long.

Published: An account of a 5-week cycle in emotional disturbances, discovered by Rex Hersey.

Developed and reported: New weighted moving average techniques for use in cycle analysis.

Published: A paper by C. H. Pinkham regarding rhythmic cycles in the sales and advertising of the Pinkham Medicine Co.

Prepared and published: An article telling how to make use of cycle knowledge.

Constructed and published: An index of pig iron prices, 1784--1951, for the use of cycle students.

Discovered, isolated, definitized, and reported: A 17 3/4-year rhythmic cycle in pig iron prices, 1784--1951.

Brought up to date: The study of the 9-year rhythmic cycle in pig iron prices discovered in 1875 by Samuel Benner.

Published: A study by Nishioka of cycles in the far East, A. D. 1, forward. (Weather, solar activity, aurora.)

Republished: Extensive excerpts from Samuel Benner's out-of-print book, Benner's Prophecies of Future Ups and Downs of Prices.

Published: An article by J. H. Nelson, relative to the correspondence between planetary position and radio transmission quality.

Prepared and published: An article, "Cycle Analysis for the Beginner."

Republished: The out-of-print paper, "Testing Cycles for Statistical Significance" by Charles F. Armstrong.

Computed: A multiple harmonic analysis of railroad stock prices, 1831--1950. Published a periodogram of the results, and obtained hints of 43 possible cycles in these figures.

Reported: A study by Ellsworth Huntington on the relationship between atmospheric electricity and business.

Reported: The 105-year rhythmic cycle in women's dress fashions discovered by Agnes Brooks Young.

Discovered, isolated, definitized, and reported: An 11.2-year rhythmic cycle in international war, 1750--1952.

Prepared and published: An index of railroad stock prices, 1831--1951, for the use of cycle students.

Reported: A 14-day rhythmic cycle in the amorousness of women, discovered by Marie Stopes.

Published: A study by G. I. Lane showing the effect of filtering monthly sunspot data, 1749--1950, for an 8-month cycle

Computed and published: Six multiple harmonic analyses of industrial stock prices for 1871--1950 as a whole, for the period by thirds, and for the last two sixths. Dozens of cycles were suggested.

Published: A cycle forecast of stock prices made in 1912; showed how it came out.

Discovered, isolated, definitized, and reported: A 142-year rhythmic cycle in international battles A. D. 1--1950.

Discovered, isolated, definitized, and reported: A 3-year rhythmic cycle in industrial stock prices, 1871--1951.

Published: An analysis by W. N. Drew which showed certain mathematical relationships between certain cycle lengths.

Reported: A study by Ellsworth Huntington showing the relation of season of birth to human characteristics and abilitie

Discovered, isolated, definitized, and reported: The 33-month rhythmic cycles in the sales of Company G.

Brought up to date: The study of the 9-year rhythmic cycle in new members in the Presbyterian Church.

Republished: The out-of-print paper by J. H. Douglas Webster, "Periodic Inspiration in Poetry and Music."

Reported: A 46-month rhythmic cycle in stocks discovered by V. L. Dunbar; published an analysis of his work.

Discovered, isolated, definitized, and reported: A 13-year rhythmic cycle in automobile sales, 1893--1951.

Published: A new way of representing typical average cycles.

Brought up to date: Studies of rhythmic cycles in the acreage of wheat, the production of cigarettes, the abundance of Lynx, and the sales of Armour & Co., Pgh. Plate Glass Co., Allis Chalmers, Jones & Laughlin Steel Co., Sears Roebuck & Co., Youngstown Sheet & Tube Co., and Swift & Co.

Published: An account of the 14 2/3-year rhythmic cycle in the number of strikes in the U. S., 1881--1951.

Discovered, isolated, definitized, and reported: A 9.6-year cycle in tree rings present on the average in each half of the data, A. D. 1067--1834.

Published: Standard month numbers, Dec. 1650--Dec. 1984.

Reported: Work of L.J. Ravitz who had discovered 14- to 17-day rhythmic cycles in the electric voltage between the heads and chests of human beings.

1953

Brought up to date: An earlier study of the rhythmic cycles in cotton & in rayon production; in the sales of American Viscose, Wilson, Armour, Procter & Gamble, du Pont, Armco, Monsanto, Montgomery Ward, and National Lead; in prices of iron pipe fittings; and in new members of the Presbyterian Church.

Reported: Periodic geysers.

Published: An article by Vedder Hughey on techniques of cycle analysis.

Reported: The work of C. G. Abbot relative to cycles in solar heat.

Published: An article by Veddar Hughey on average cycles in stock prices 1854--1951.

Published: Papers by Leonard Wing, relative to a 22 2/3-year rhythmic cycle in the abundance of the European Partridge in Czechoslovakia; and to six other shorter rhythmic cycles in other wildlife figures.

Published: An article relative to rhythmic cycles in variable stars.

Published: Not-generally-available data on wheat prices in England 1260--1918; wrought iron prices in England, 1277--1918.

Discovered, isolated, definitized, and reported: A 9.3-year rhythmic cycle in wheat prices 1866-7--1951-2.

Published: Analysis of C. N. Anderson giving length, strength, and timing of average cycles in sunspots with alternate cycles reversed, 1749--1949.

Discovered, isolated, definitized, and reported: A 3 1/2-year rhythmic cycle in the income of the Continental Oil Co.

Discovered, isolated, definitized, and reported: A 9.3-year rhythmic cycle in grasshopper outbreaks, 1841--1940.

Reported: A 45 6/7-day cycle in a common stock, April 1951--February 1953.

Discovered, isolated, definitized, and reported: A 7 1/2-year cycle in wheat prices, 1858-59--1951-52.

Published: Papers by Leonard Wing reporting upon his discovery of seven additional rhythmic cycles in lynx abundance, 4-year cycles in the abundance of snowy owl, evening grossbeak, and pine grossbeak.

Discovered, isolated, definitized, and reported: The 9.2-year, 3.4-year, 5.9-year, and 6.5-year cycles in the liabilities of business failures, 1857--1953, and combined them with trend and the 17 3/4-year cycle in these figures.
Computed and published: The underlying trend of manufacturing production, 1810--1953.
Discovered, isolated, definitized, and reported: The 9.3-, 11.2-, and 13-year cycles in manufacturing production figures, 1860--1952. Made a preliminary report in regard to the half-century cycle in these figures, 1810--1952.
Published: Dates of break-up and freeze-up of the St. John River, 1825--1952.
Published: Annual date of the flood stages of the river Nile, A. D. 622--1921.
Published: Standard quarter-year numbers 1651--1979.
Reported: Additional work of Ellsworth Huntington about the relationship of the seasonal cycle and human characteristics and ability.
Reprinted: A paper by G. B. Nance relative to a 14- to 16-year rhythmic cycle in beef cattle prices.
Reported: The work of Ellsworth Huntington showing the correspondence of cycles in wheat prices and in weather.
Discovered, isolated, definitized, and reported: A 6.33-month rhythmic cycle in industrial common stock prices, 1871--1952.
Reprinted: An article by W. M. Flinders Petrie relative to a 130-year rhythmic cycle in economy and waste and to a 1,115-year rhythmic cycle of civilization.
Reprinted: "The Long Waves in Economic Life" by N. D. Kondratieff, the out-of-print cycle milestone.

1954

Discovered, isolated, definitized, and reported: The 50- and 36-year cycles in manfacturing production, 1809--1953.
Discovered, isolated, definitized, and reported: An 8-year cycle in Goodyear Tire & Rubber Co. sales, 1926--1952.
Brought up to date: Prior studies regarding sales of Sears Roebuck, du Pont, Swift, Monsanto, National Lead, Std. Oil of Calif., Pgh. Plate Glass Co., and Goodyear Tire & Rubber Co.; production of pig iron; wheat acreage; cigarette production; cotton prices; income of Continental Oil Co.; lynx abundance, industrial production; stock prices.
Reported: The work of H. T. de Boer relative to eight cycles in the barometric pressure of Batavia.
Discovered, definitized, and reported: Three minor cycles in stock prices 1854--1952.
Published: A paper of Stephen W. and Netta E. Gray in respect to long cycles of human characteristics and abilities.
Discovered, isolated, definitized, and reported: The 7.3- and 3.5-year rhythmic cycles in the sales of du Pont.
Published: A paper of G. T. Lane on cycles in sunspot numbers.
Published: A paper of Leonard W. Wing regarding the global pattern of a 4.222-year cycle in temperature.
Discovered, isolated, definitized, and reported: A 3.4-year rhythmic cycle in automobile sales.
Prepared and presented: An article regarding the use of "limited data" in connection with cycle analysis.
Discovered, isolated, definitized, and reported: A 22 2/3-year rhythmic cycle in grasshopper abundance, 1841--1940.
Prepared and presented: An article showing the effects of moving averages on periodic cycles and on randoms.
Inaugurated: The Geisinger Indicator of industrial production.
Reported: The discoveries of E. L. Mosely relative to cycles in Ohio River valley floods.
Discovered, isolated, definitized, and reported: The 36- and 23 2/3-month rhythmic cycles in automobile sales.
Discovered: A 15-year rhythmic cycle in grasshopper outbreaks, 1841--1940. (Not reported upon.)
Discovered, isolated, definitized, and reported: The 9.3- and 8.6-year rhythmic cycles in copper prices, 1784--1953.
Reprinted: A paper by Rex B. Hersey regarding emotional cycles in male workers.
Published: A paper by A. Streiff regarding cycle forecasts of drought.

1955

Published: A paper by Leonard W. Wing relative to latitudinal passage of Bob-white, and Woodpecker cycles.
Discovered and reported: The fact that certain cycle lengths are related by double and triple progressions.
Discovered and reported: A long cycle in stock prices (about 22 or 23 years long).
Discovered, isolated, definitized and reported: A 17 3/4-year cycle in cotton prices.
Isolated, definitized, and reported: A 5 1/2-year cycle in corn prices.
Discovered: That 17 3/4 and 18.2-year cycles are not present in flood stages of the River Nile, wrought iron prices in England, population of the U. S., immigration into the U. S., varve thickness at Lake Saki, and copper prices.
Prepared and published: An article on non-symmetrical cycles, phyllotaxis, and the Fibonacci series.
Discovered, definitized, and reported: A 17.73-year cycle in War, 258 B. C.--A. D. 1882.
Discovered and reported: Additional evidence that the so-called 18-year rhythmic cycle in sunspots with alternate cycles reversed, 1749--1949, is probably a compound of 17 3/4- and 18.2-year rhythmic cycles.
Reported: The 3 1/2-year cycle in conscience money paid by British Taxpayers.
Discovered, definitized, and reported: A 17.66-year cycle in Chinese earthquakes, A. D. 59--1651.
Prepared and published: A biography of Samuel Turner Benner, pioneer cycle analyst.
Discovered, definitized, and reported: An 18.7-year cycle in Java tree rings, 1514--1929.
Published: An article by H. K. Rutherford on the combination of cycles.
Published: An inquiry into the possible existence of a fundamental 600-year cycle.
Discovered, isolated, definitized, and reported: A 16 2/3-year rhythmic cycle in iron prices in England, 1277--1918.
Published: A paper by L. Peter Cogan regarding seasonal cycles of the common cold.
Discovered, definitized, and reported: A 16 2/3-year cycle in Java tree rings, 1514--1929.
Published: A paper by Vedder Hughey on the significance of recurring patterns in serially correlated time series.
Discovered and reported: A possible 16 2/3-year cycle in Arizona tree rings, A. D. 900--1939.
Reported: Further work of Leonard Wing relative to global patterns of cycles in temperatures.
Discovered, isolated, definitized, and reported: a 17.2-year cycle in U. S. Population, 1790--1954.
Reported: Research by F. A. Pearson relative to a 16 or 16 2/3-year rhythmic cycle in coffee prices.
Discovered, definitized and reported: An 18.2-year cycle in the marriage rate, 1867--1950.
Recalculated: Earlier work relative to black pepper price cycle using 43 additional years of figures. Most probable length, 1819--1953, 15 1/7 years.
Continued: The Geisinger Indicator of industrial production.
Discovered, isolated, definitized, and reported: A 6-year rhythmic cycle in steel production, 1867--1954.
Published: A paper by W. C. Yeatman relative to a method for separating one cycle from another.
Discovered, isolated, definitized, and reported: A 6- and an 8 1/2-year cycle in General Electric sales, 1899--1954.
Discovered, isolated, definitized, and reported: A 4-year rhythmic cycle in sunspots, alternate cycles reversed.
Republished: An article by J. Edgar Hoover about cycles in crime.
Discovered, isolated, definitized, and reported: A 4-year rhythmic cycle in the consumption of cheese, 1867--1953.

Reported: Further details of J. H. Nelson's use of planetary cycles in forecasting radio weather.
Discussed: The possibility of irregular cycles.
Discovered, isolated, and reported: A reversing 6-year cycle in General Motors Sales, 1919--1954.
Discovered, isolated, and reported: The 3 1/2 and 3 3/4-year rhythmic cycle in corn prices, 1720--1954. Definitized the 3.49 year cycle.
Computed and reported: The bisection periods of the planets.
Reprinted: An article by Saville R. Davis regarding E. S. Bowers seasonal cycle of worldwide rainfall.
Published: An article by Vedder Hughey regarding a new electronic cycle analyser.

1956

Prepared and published: An article to show what to look for when seeking rhythmic cycles.
Discovered: The 22-year cycle in international battles is present in each section of the data back to 599 B. C.
Published: An article by G. T. Lane reporting his research into cycles in rainfall at Santa Barbara, California.
Published: An article by D. H. Bulkley reporting upon the 36-37 1/2-hour and 72-75-hour cycles of human behavior.
Prepared and published: An article in regard to the nature of cycles.
Discovered, isolated, and definitized: A 14.8-year cycle in copper prices, 1784--1955. (Not reported.)
Discovered and reported: The fact that there is no 8 1/2-year cycle in stock prices.
Prepared and published: A comprehensive article relative to the 8- to 9-year cycles in various phenomena.
Published: A translation and condensation of a paper by A. L. Tchijevsky regarding cycles in mass excitement, 500 B. C.-A. D. 1922.
Continued: The Geisinger Indicator of industrial production.
Published: Revised sunspot maxima dates since 649 B. C. by D. Justin Schove.
Restudied and confirmed: The 8.17-year rhythmic cycle in common stock prices, 1871--1955.
Reported: The 6 1/4 hour rhythmic cycle of wildlife activity.
Prepared and published: A comprehensive article in regard to the 8-year cycle in various phenomena.
Discovered, isolated, definitized, and reported: The 7.94- and 8.39-year rhythmic cycles in rail stock prices.
Published: An article by J. E. Appel regarding trends and cycles in Masonic membership.
Restudies: Barometric pressure at New York, revised cycle length from 7.8- to 7.6 years; reported thereon.
Published: A catalog of cycles.
Determined and reported: The trend of stock prices, 1871--1956. (The trend is the axis around which the cycles oscillate.)
Published: An article by W. A. Moore, Jr. showing relationship between sunspots with alternate cycles reversed and international war, 1750--1955.
Reported: C. G. Abbot's 60-year weather forecasts.
Published: An article by D. S. Castle calling attention to the fact that the cycles so far discovered in the stock market fit the musical scale.
Reported: A. J. Kapteyn's discovery of a 5 1/2-year rhythmic cycle in airplane traffic, 1930--1955.
Published: An article by Charles H. Pinkham regarding the 6-year cycle in various phenomena.
Republished: An article by John J. Grebe which places the science of cycles in its setting.

1957

Published: A paper by Leonard W. Wing regarding time chart measurements of Norwegian lemming and rodent cycles.
Discovered, isolated, definitized, and reported: A 5.91 or 5.92-year rhythmic cycle in rail stock prices, 1831--1956; and in combined stock prices, 1871--1956.
Discovered: A 27-year rhythmic cycle in combined stock prices.
Reported: The discovery in 1847 by Dr. Hyde Clark of an 11-year rhythmic cycle in the state of trade.
Prepared and published: Two articles regarding the 5.91-year cycles in various phenomena.
Published: An address by the Director regarding the Foundation and its work.
Published: Material to show that the cycles in each thing are different.
Inaugurated: "The Beginner's Corner," a series of articles to help people to study cycles on their own.
Synthesized: The 17.75- 9.2-, 6.5-, 5.9-, and 3.42-year rhythmic cycles in commercial failures with underlying trend.
Refined: The 5 1/2-year rhythmic cycle in corn prices, discovered in 1875 by Samuel Benner.
Reprinted: John W. Tukey's out-of-print paper, "The Sampling Theory of Power Spectrum Estimates."
Published: A list of the orbital periods of comets which take less than 100 years to orbit.
Published: A paper by Leonard W. Wing in regard to ultra-long waves and solar terrestrial cycle relationships.
Republished: A synthesis of 11 stock market cycles and trend.
Prepared and published: An article in regard to the 12- to 12.9-year cycles in various phenomena.
Continued: The Geisinger Indicator of industrial production.
Prepared and published: A series of articles regarding long term growth trends of the American economy.
Reported: An article by H. H. Swinnerton regarding the 3- to 4-week cycle in Antartic air currents.
Discovered, isolated, and definitized: A 12.53-year cycle on copper prices, 1784--1956 (but did not report on it).
Brought up to date: The earlier study regarding the 9.3-year rhythmic cycle in wheat prices.
Reported: The work of Thor N. V. Karlstrom relative to cycles in the advance and recession of glaciers.
Published: A report upon the long term trend of copper prices.
Discovered, isolated, definitized, and reported: A 54-year rhythmic cycle in copper prices, 1784--1956.
Brought up to date: The work of N. D. Kondratieff in respect to the 54-year rhythmic cycle in interest rates.
Reported: Recent cycle research of G. T. Lane having to do with correspondence of wave lengths between celestial and terrestrial cycles.
Reported: More about D. H. Bulkley's 12 1/2-, 37 1/2- and 75-hour cycles of human reaction.
Brought up to date: Earlier work regarding the 33-month cycle in residential building construction; synthesized this cycle with the 12-month cycle and trend, and projected the synthesis.
Brought up to date: Earlier work regarding cycles in failures, cycles in copper prices, cycles in corn prices.
Refined: Earlier work regarding a 22-year cycle in stock prices. Isolated, definitized, and reported upon it.
Prepared and published: An article regarding irregular cycles.

1958

Published: A paper by Hugh P. King abstracting references to cycles in financial data up to and including 1951.

Brought up to date and reported: An earlier study relative to 2 3/4-, 3-, 3 1/2-, and 6 1/3-year rhythmic cycles in the sale of automobiles, 1893--1957.

Reported: The cycle research of C. E. P. Brooks relative to rainfall cycles in England.

Published: An article by E. A. Lewis relative to cycles in history.

Prepared and published: A technical article relative to measuring and presenting cycle research.

Brought up to date: Earlier work relative to rhythmic cycles in stock prices, residential building, construction, interest rates, failures, copper prices, corn prices, wheat prices, cigarette consumption, barometric pressure at New York, sales of Goodyear tire.

Continued: The series of articles having to do with the techniques of cycle analysis.

Brought up to date: Earlier work relative to cycles in international battles, 599 B. C.--A. D. 1957.

Reprinted: The out-of-print paper by J. H. Douglass Webster relative to periodic inspiration in poetry and music.

Reported: Charles Davison's research in respect to a 10.96-year rhythmic cycle in the abundance of earthquakes, 1305--1898.

Continued: The series of articles relative to trend in the American economy.

Discovered, isolated, definitized, and reported: A 6.4-year rhythmic cycle in aluminum production, 1886--1957.

Published: A paper by Stephen W. and Netta E. Gray regarding evidence for a 400-year rhythmic cycle in human ability.

Reported: An article by Rachel L. Carson relative to rhythms of 9, 18, and 1800 years in climate.

Reported: Research of Gordan E. Dunn relative to rhythmic cycles in hurricanes.

Reported: Research of Wm. W. Morris relative to an 11-year rhythmic cycle in crop yields of oats, wheat, barley, tame hay, potatoes, corn, tobacco, and rye in Wisconsin, 1866--1946.

Discovered, isolated, definitized, and reported: A 26.5-month rhythmic cycle in egg prices, Jan. 1947--Feb. 1948.

Brought up to date: Earlier work relative to rhythmic cycles in manufacturing production.

Reported: Research of H. W. Clough relative to 37-year rhythmic cycles in 11-year solar intervals, frequency of aurorae, frequency of severe winters, frequency of Chinese earthquakes, wheat prices, growth of Arizona pines, Nile floods.

Published: An article by C. R. Chapman relative to a 2 1/2-year rhythmic cycle in the demand growth for electric power, 1936--1957.

Reported: Research of Arthur Holmes relative to a 65-year rhythmic cycle in the eruption of Mt. Lassen, 1735 to date.

Reprinted: The out-of-print paper by J. Speirs about rhythmic cycles in birds in the Toronto region.

Published: Observations of James A. Block relative to a 790-year cycle of civilization.

Continued: Publication of the Geisinger Indicator of industrial production.

Published: A paper by Leonard W. Wing relative to latitudinal passage behavior.

Prepared and published: A paper definitizing the length of the sunspot cycle, 300 B. C.--A. D. 1950.

Isolated, definitized, and reported: A 17.12-week cycle in stock prices, Jan. 1920--Dec. 1957.

Isolated, definitized, and reported: A seasonal cycle in unemployment, 1948--1957.

Discovered, isolated, definitized, and reported: A 26.64-month rhythmic cycle in oat prices, 1928--1957.

Reprinted: The out-of-print paper of C. Garcia-Mata and F. I. Shaffner relative to solar and economic relationships.

Brought up to date: Earlier work relative to a 9-year cycle in new members of the Presbyterian Church, 1831--1957.

Reprinted: An article by Louis H. Bean relative to sunspot-climate relationships, 1750--1956.

Reported: Research of the Naval Ordinance Unit relative to a 22-month cycle in the temperature of sea water at Key West, Florida.

Prepared and published: An article about the tendency of cycles of any given wave length to crest (and trough) later and later as they are found nearer and nearer the equator.

Published: An article by H. B. Van Houten relative to the Gray epicycle theory of history and a critique by A. L. Kroeber.

Published: An article by John Harvey on the 9.25-year cycle in the Dow-Jones industrial averages.

Continued: The publication of the series of articles designed to help the beginning cycle student.

Discovered, isolated, definitized, and reported: The 8.3- and 9.17-year rhythmic cycles in patents, 1830--1937, determined underlying growth trend, and synthesized these elements.

Reported: John Nelson's latest discoveries relative to cycles in radio weather.

Inaugurated: A series of articles by H. K. Rutherford having to do with the break down of cycle structures in time series.

1959

Brought up to date: Earlier work relative to rhythmic cycles and trend in manufacturing production, 1809--1958, and discussed short, irregular, dynamic cycles.

Prepared and published: An article relative to basic cycle concepts.

Prepared and published: An article relative to the 16 2/3-year cycle.

Reprinted: An article by E. Hugh McDougall relative to cycles in consols.

Continued: The publication of the Geisinger Indicator of industrial production.

Continued: The series of technical articles by H. K. Rutherford.

Reprinted: The out-of-print book Benner's Prophecies of Future Ups and Downs of Prices, published originally in 1876.

Brought up to date: Earlier work relative to the 5.91-year rhythmic cycle in cotton prices, the 18 1/3-year rhythmic cycle in real estate activity, and the 7 1/2-year rhythmic cycle in the ton-miles of the Canadian Pacific Railway, and 6 rhythmic cycles in Santa Barbara weather.

Prepared and published: An up-to-date account of the 17.75-year cycle complex.

Refined: Earlier work relative to the 17.75-year rhythmic cycle in stock prices 1831--1958.

Prepared and published: An article regarding the 2-year rhythmic cycle in the abundance of the evening grosbeak.

Discovered, isolated, definitized, and reported: An 11.2-year rhythmic cycle in pig iron production, 1844--1958.

Reprinted: An article by E. H. McDougall relative to a 27-, 8-, 9-, and 54-year cycles in ordinary shares 1870--1957.

Brought up to date: Earlier studies relative to failures, egg prices, oat prices, stock prices, residential building construction, lynx abundance, copper prices, aluminum production, international wars.

Published: An article by D. M. Himmelblau relative to seasonal influences in petroleum inventories.

Published: An article by Arthur Louis Joqual II relative to the cycles of the world's great religions.

Prepared and published: A study to show the trend of stock prices 1831--1958, and the variations from normal.

Published: A paper by David Williams, "Business Cycle Forecasting".

Discovered, isolated, definitized, and reported: A 23.75-month cycle in cotton consumption, 1924--1957.

Prepared and published: An analysis of the various kinds of cycles.

Prepared and published: A list of variable stars with periods over 2 years in length.
Prepared and published: An article regarding the trend of industrial production.
Reported: The 3.67-year (44 month) cycle in the abundance of the pine grosbeak, 1870--1940.
Inaugurated: A series of articles relative to cycles, the science.
Brought up to date: An earlier report relative to the Dunbar 46-month cycle in stock prices.
Continued: The series of articles for cycle beginners.
Reported: The work of Frank A. Brown, Jr. about cycles in the behavior of crabs.

Why the Third Period has Ended

As one looks at it in retrospect, the last nine years show a very solid chunk of scientific achievement. Why then—with all running smoothly—do I say that an era has ended? Why won't the next nine years more or less duplicate the last nine? Why has the third period come to a close? I'll tell you.

First, the achievements of the last nine years prove without doubt (although of course not without doubters!) that we are dealing with natural phenomena of the utmost importance to mankind. This is not to say that all the cycles that have been discovered have significance. Undoubtedly many of them are merely the result of happenstance. But there are enough of undoubted validity to prove the need of getting to the bottom of the cycle mystery. *No additional research is needed to prove this fact.*

Second, we've grown so large that my time is now largely taken up with administrative work, (Last year our average daily expense was $493, more than half of which was spent to secure new members. An activity as large as this does not run itself.) And I'm fed up with being an administrator at stenographer's wages. It pleases me to fancy that I have some aptitude for cycle research, Anyway, I like it and I am willing to do that sort of thing for a bare living. But if I am to be merely an administrator, why should I be one for $3,229 a year (my average "take" for the last nine years) when I could hire out as an administrator for at least four times as much? It just doesn't make sense!

It was these considerations, and others of a similar nature, that led our directors to decide to discontinue efforts to get new or replacement members and from now on to let membership division seek its own level. The magazine *Cycles* will of course be continued, but henceforth we plan to devote our energies more and more to the fourth phase of our existence.

The Fourth Period

The fourth period, about to start, is the period of basic research. It is the period where the criteria for research will be the needs of the science of cycles itself—not chance, or whim, or personal interest, or the uninformed desires of the multitude. It is the period where gaps in cycle research will be filled in; where cycle research will be intensive—not extensive; where the wheat will be separated from the chaff. It is the period where crude and early cycle work will be done over and refined. It is the period where clues will be run down; where the organization and classification of our facts will be improved, where laws will be discovered; where causes will be learned.

Basic research has been defined as research of no immediate practical usefulness. Basic research is concerned with getting at the heart of things. Once we know the ultimate *how* of things (we need never expect to learn the *why* of anything) we have control over nature. Or at least, if we cannot control her, we can adapt to her. Samuel Crouthers once said that the greatest ability was *adaptability.* But how can you either control or adapt to nature if you don't know her laws?

Applied research *follows* basic research. To reverse the process, and attempt the applied research first is to put the cart before the horse. Without basic research to *precede* their efforts how do you suppose that chemists could have made synthetic rubber? Or physicists the atom bomb? Why then can you expect that the science of cycles will be any different?

Under pressure from our members our research has been largely *applied.* In a way this has been good. It has caused us to investigate cycles in many fields, from the abundance of grasshoppers to the price of eggs. It has provided a general overall picture of cycles and has proved their universal nature. It has provided the raw material from which basic research can be conducted, and shown where to conduct it. However, it has served its purpose. We need now to take the next step.

I have likened the third period to infancy. To continue the analogy, the fourth period (the period about to start, if money can be secured)--resembles childhood. The infant roams more or less at will touching whatever suits his fancy, and thereby acquiring a considerable store of knowledge. All this is a necessary prerequisite to going forward. As a child, however, he starts to school. There he is concerned with *organized* learning. He learns according to a program. He does what the *subject matter* demands, not merely what happens to interest him. He learns interrelationships, causes, laws. So it will be with us.

This growth, this change, this flowering, this advancing step by step, is really a wonderful thing. You can be proud, as I am, to have had a part in it.

Cordially yours,

Edward R. Dewey

Director

Research by Others

THE 2-YEAR CYCLE IN TEXTILES

BY GERTRUDE SHIRK

The May issue of *Cycles* carried a report on cotton consumption which described a 23.75-month cycle, and which combined this cycle with the seasonal pattern and the underlying trend.

This work is brought up to date in the Round-Up on page 164 of this issue.

Department of Commerce Report

At the time we did the work on cotton consumption we were unaware that the Department of Commerce had published a report, *Cycles and Trends in Textiles,* by Thomas J. Davis.

Davis's work is a thorough analysis of the possibility of a 2-year cycle in textile consumption. It covers major apparel-fiber consumption (cotton, wool, rayon and acetate, and silk).

Certainly anyone in the textile industry should study this publication, and it is for sale from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for 40 cents. It can also be obtained from the nearest field office of the Department of Commerce.

Davis points out that the greatest part of the theoretical discussion of business cycles ignores the possibility of an industry having a cycle that is characteristic of that particular industry. Nevertheless, people in the textile industry have long been convinced that there is a "textile cycle" which affects the level of their business separately and in addition to the effect of the level of business in general.

The work is an attempt to find out if such a cycle exists, and if it does, what the dimensions and timing are. Then he is concerned with the cause of the cycle, and also the relation of the textile industry to the economy in general.

Out of the several steps in the industry (from the raw material level to the retailers shelves) Davis selected the mill level "as being most representative of the entire industry insofar as fluctuations are concerned."

He used the consumption at the mill of apparel-type fibers, as these represent the bulk of the business.

First, the total of all fibers was used. The result is shown in the chart on page 156. The cycle is apparent.

Timing of the Cycle

It is interesting to us that the timing of the peaks and troughs for *all* apparel-type fibers is roughly the same as that which we found for the total of cotton consumption. For the most part, the peaks come in odd years, and the troughs come in even years.

Effect of the Cycle

Davis makes the interesting observation that the amplitude variation can be explained to some extent by the level of general business, and that the 2-year cycle will affect apparel-fiber consumption by about "6% in good times, 8 to 9% in recessions, and 9 to 14% in deep depressions."

After considering the total of all apparel-type fibers, Davis considers the categories of cotton, wool, rayon and acetate, and raw silk separately. The second chart which we have reproduced from the Department of Commerce report is on page 157 and shows the result of the analysis of the three separate catagories, cotton, rayon and acetate, and wool.

Here again, the 2-year cycle is apparent in each of the catagories. Of the periods when the cycle was apparently inoperative, wars and the cartel-like control of the N. R. A. period explain all but one. There is not as yet a ready explanation for the 1955-56 period when the cycle apparently did not function.

I should note, however, that according to our recent work, the 2-year cycle appears to be getting back into its usual swing.

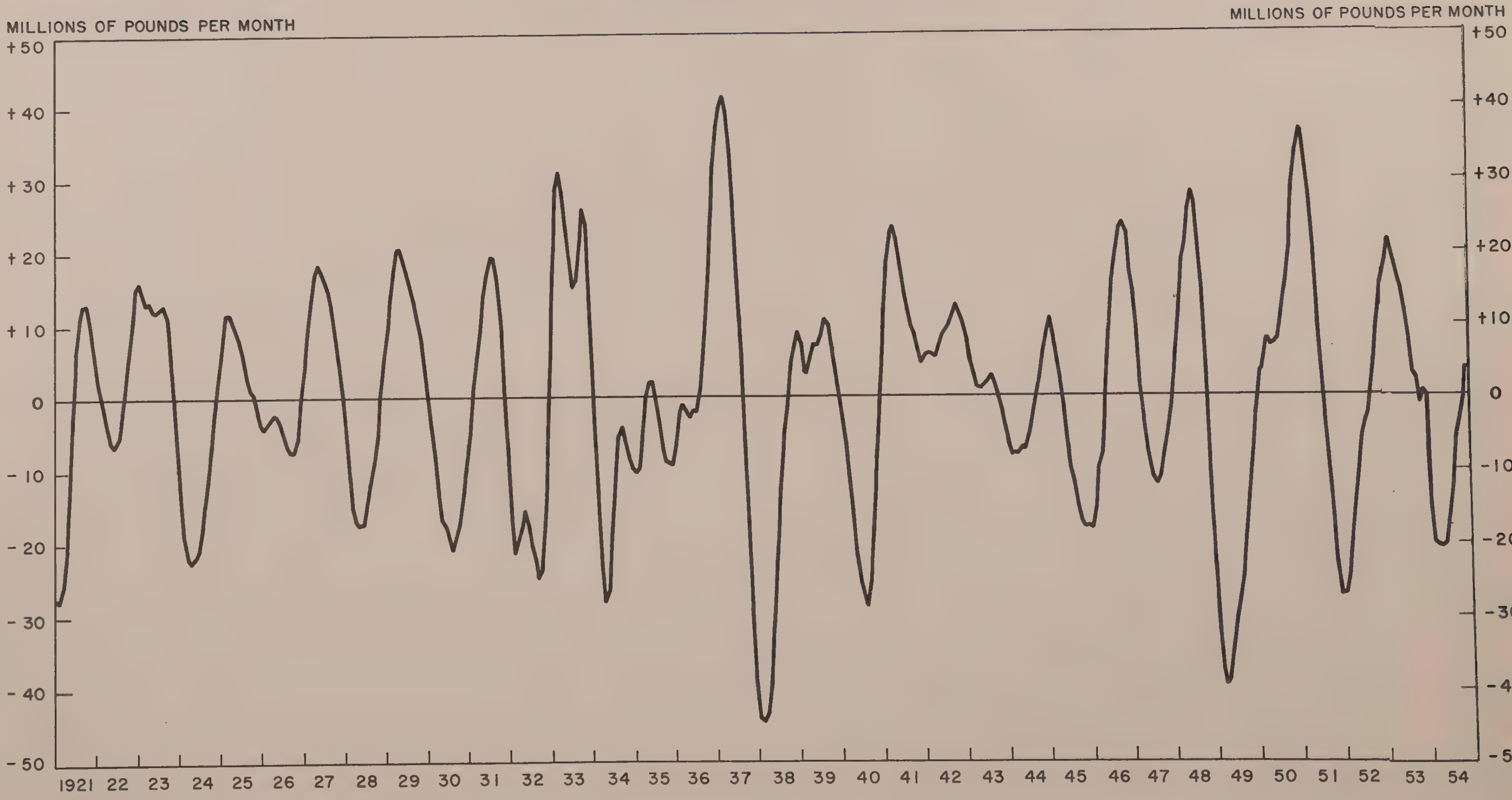
Other Aspects

Davis's work goes much deeper than this short review would indicate. For example, he attempts to find out if changes in buying at the consumer level cause the cycle. See the chart on page 158 for a comparison of the mill consumption cycle with the cycle of retail sales of apparel group stores. Here the result is inconclusive, as retail sales sometimes lead and sometimes lag mill consumption.

Chapter V of this Department of Commerce report relates fiber consumption to the national economy, and although this is outside our province, it certainly is of great interest to those in the industry.

In fact, this entire publication is basic background information for anyone interested in textiles, and we recommend it heartily.

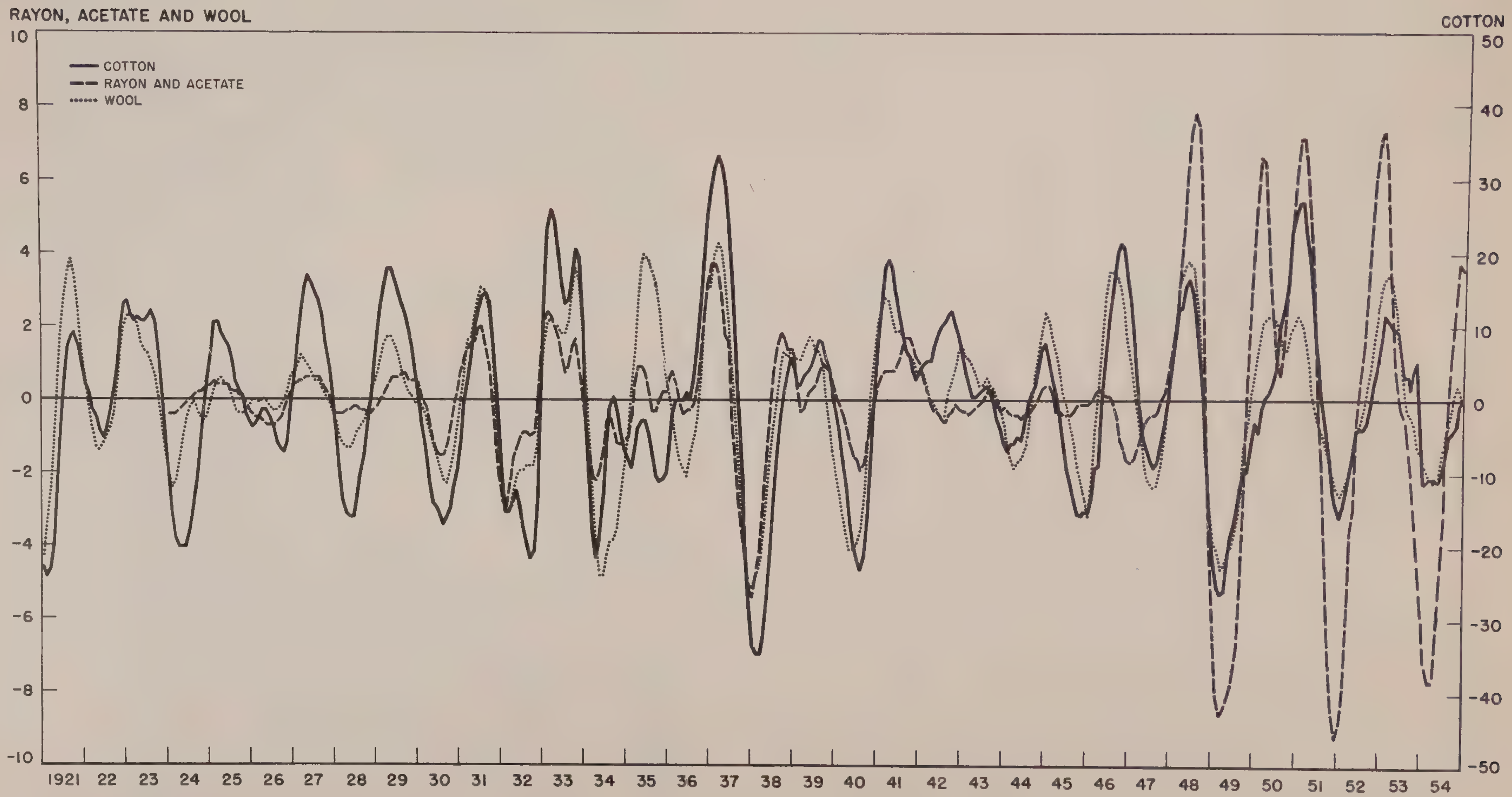
The Textile Cycle: Difference Between 12 and 24 Month Moving Averages of Apparel-Type Fiber Consumption, 1921-54



SOURCE: TABLE 4

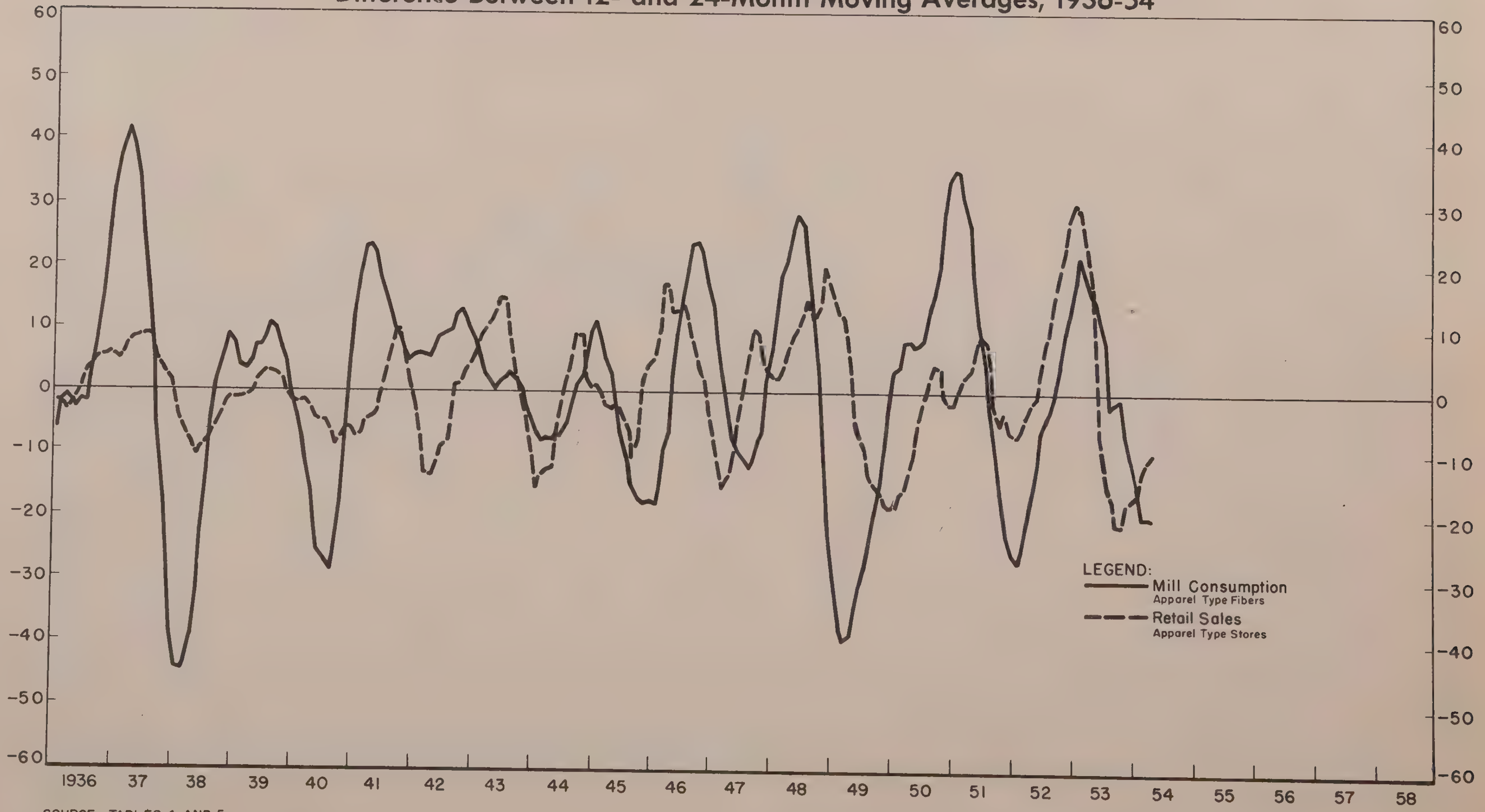
Cotton, Rayon and Acetate, and Wool: Effect of the Textile Cycle on Mill Consumption, 1921-54

(Millions of pounds per month, cotton on a scale five times that of rayon and acetate and wool)



SOURCE: TABLE 4

The Cycle in United States Mill Consumption of Apparel-Type Fibers (millions of pounds per month) and Retail Sales of Apparel Group Stores (millions of dollars per month): Difference Between 12- and 24-Month Moving Averages, 1936-54



SOURCE: TABLES 4 AND 5

Foundation Affairs

PROFESSOR DOUGLASS ELECTED TO COMMITTEE

We are pleased to announce that on May 12th last our Board of Directors elected Dr. Andrew E. Douglass to membership on the Committee of the Foundation.

Dr. Douglass, an astronomer of note, was formerly Director of the Steward Observatory, and is now Professor of Astronomy, Emeritus, at the University of Arizona. The list of his scientific achievements is a long one, but of particular interest to us is his great contribution to dendrochronology.

Dr. Douglass is Director of the Laboratory of Tree-Ring Research at the University of Arizona at Tucson. Dr. Douglass is a pioneer in tree-ring research and has devoted a life time to the study of tree-rings.

Over the years he has laboriously built up the record of tree-ring chronology covering more than 3000 years. This has been done by studying thousands of ring specimens. Starting with the outside ring of a tree just cut and counting to the center, the ring pattern is related to the calendar. The pattern, once established, can be carried over to ancient specimens for which the time of cutting is not known. Where there is an overlap it is definitely shown where the older specimen picks up and repeats the pattern of the more recent tree during the period of the overlap. The record can then be carried farther back from the older specimen.

This discussion makes the work sound relatively easy, but it is impossible to convey the painstaking task into which this sort of research develops. Frequently it involves difficult and time consuming (even if romantic) side excursions.

For instance, as gaps developed in the record, methods had to be developed to fill the gaps. It occured to Dr. Douglass that timbers for the blank periods could be found in the Hopi villages, if the period of the villages could be established. To date the era of villages in which to look, pottery patterns were used, archeologists having developed the evolution of pottery patterns. This method enabled Dr. Douglass to complete his records.

This short review gives a small glimpse into the background work of Dr. Douglass. The facts related here are from *Sunspots and Their Effects* by Harlan True Stetson.

The next step in this phase of Dr. Douglass's career was his cycle work with tree-rings. His contribution has been invaluable.

Dr. Andrew E. Douglass

Dr. Douglass at work. The machine shown here correlates ring cycles with cosmic changes. The pattern on the machine shows Los Angeles rainfall and sun spots.

Letters to the Editor

THE STOCK MARKET

The chart on pages 78 and 79 of the April, 1959, issue bring to mind the study of economics as I was taught it by Professor Marston at the University of Southern California some years ago.

Dr. Marston taught "For every action there is an equal and opposite reaction" as a basic law of nature which applies to economics as well as physics. To prove his point he would use charts showing a moving average and the highs and lows over a period of many years. His theory was that the areas, blacked, would over a sufficient time, be very close to equal above and below the line of the moving average.

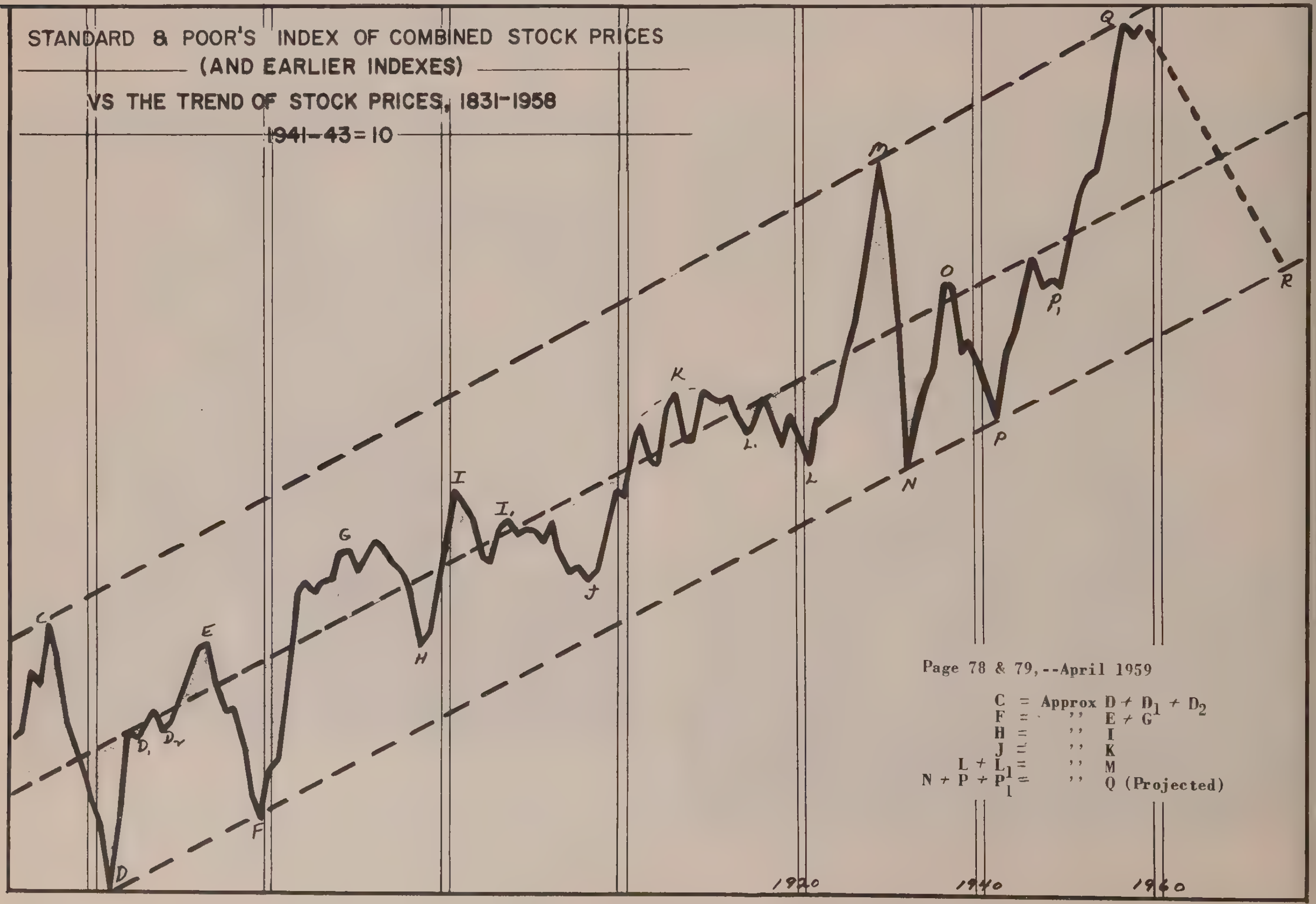
I am enclosing a tracing of your chart with the areas blacked. To the eye it would appear that up to and including peak M the areas above and below line AB are very nearly equal. I have projected the next low to your point R in about 1973. Based on the projection, at that time the area in point Q would about equal N,P, and P_1 and the chart would be about in balance, according to the theories of Dr. Marston.

La Jolla, California

Comment: Your extension and the reason for it are interesting. We should point out that in this case the trend line is deliberately constructed so that the area above the line equals the area below the line. Although there is no guarantee that the areas around the trend line will continue to be equal, the assumption can be made. At the least, it is better than shooting in the dark.

PRO AND CON

I have not found any way of utilizing the contents of *Cycles* in my investment program. Apparently the forces of inflation have negated previous economic data to the extent of rendering cyclical trends nearly valueless; in fact their contrary indications I am afraid are a liability in that a



close follower of this data has missed the boat on most of the recent stock market rise, myself included! As a result I fear that whatever I do at this late date will probably be wrong.

From an academic standpoint I must admit that I enjoy your studies immensely—the difficulty occurs when I attempt to over-use the data in terms of every day practical use.

Robert G. Benson

Comment: Your use of the expression "over use the data" is good. Most people who are disappointed in results obtained with cycle analysis are disappointed because they "over use" and (misuse) the information.

With respect to the stocks, the cycle analysis is only background information to explain the basic structure of the market. It can (and on occasion should be) totally disregarded. But this disregard should be a conscious process. How can you operate in the market without some idea of the basic structure of the data?

Can you imagine a farmer who had figured the basic weather pattern, and from it learned that, on the average, he could start to plow on April 20, but who then insisted that he *must* start to plow on April 20, or the seasonal pattern was wrong--even if it had rained every day for two weeks prior to April 20? Of course not.

All the knowledge of the seasonal cycle tells the farmer is to have the machinery ready and the seed and fertilizer bought, so that *about* April 20, *give or take a couple of weeks,* he can start to plow. The day he starts to actually plow would depend on how well the spring in question conforms to the average patterns of all springs. But the farmer must know that spring comes in the spring.

It's the same process with the cycle analysis of the stock market, except that you are dealing in this case, with years instead of weeks. This reduces the problem to its simplest form, and the market problem is of course more complicated than the farmer's seasonal cycle.

The advent of your monthly journal is an occasion of great pleasure and although I seldom get time to read it except high up in the sky on my journeys, it certainly never puts me to sleep--on the contrary.

Oslo A. Taranger

DUNBAR'S CYCLE

While the 46-month cycle calls for a bull market high in 1960 there have been occasions in the past where the absolute high came in the preceding year. I have made no attempt as yet to calculate the end of this bull market such as I did for the end of the bear market in October 1957. However, if the present emotional buying of the uninformed persists and prices climb to still dizzier heights without even normal corrective phases, we may have to start thinking about the possibility of this market coming to an end in 1959.

Keep up the good work.

Cincinnati, Ohio Veryl L. Dunbar

ADVENTURES IN FORCASTING

In my recent articles in *Cycles* under the appropriate heading of "Adventures", one approach to forecasting was discussed. Review of these articles indicates that, so far, the subject may have been made more of a puzzle than before. A brief summary may help to define the problem and may suggest the extent to which "method" in forecasting is reliable.

Any actual series is the result of many *rhythms* combining to create cycles in the plotted curve. By definition, a rhythm will repeat regularly, both in timing and amplitude, like the teeth in a saw, but the combination of rhythms into a composite curve gives results generally not rhythmic in the above sense. The component rhythms being largely unknown, an alternative is to investigate what can be learned by a study of the original curve.

Forecasting involves two aspects—when and where, or timing and level. Unfortunately, these two aspects clearly have no invariable relationship—it being impossible to predict that, at a given date, the curve will be at a predicted level. It appears that the two aspects must be predicted separately, and that forecasts for any given date must be based on a comparison of the two to arrive at reliable conclusions. Thus, either one by itself, however conclusive at times, answers only part of the problem. Had a constant relationship existed between timing and level, it would have been discovered long ago and cycles might have been eliminated.

Further study is needed to develop useful conclusions in regard to the relationship of timing and level. This is now being investigated, but, at present, there appears little prospect that definitive answers can be given. In other words, forecasting will continue to require informed judgment and therefore, will be more interesting—and difficult—than if cut and dried.

In view of the uncertainties in the problem, one will sometimes wonder if the study is worthwhile and if more useful results for many purposes would not be obtained by simply concluding that when the curve stops going up it will go down and vice versa. While such a development is useful in calling attention to a cycle reversal perhaps not forecast, it appears to be of little value in forecasting, however useful to the opportunist.

The general conclusion therefore is that judgment will remain an essential factor in forecasting, assisted by observation of the relationship of timing and level most in agreement with actual performance.

H. K. Rutherford

The Cycle Round-up

JULY 1959

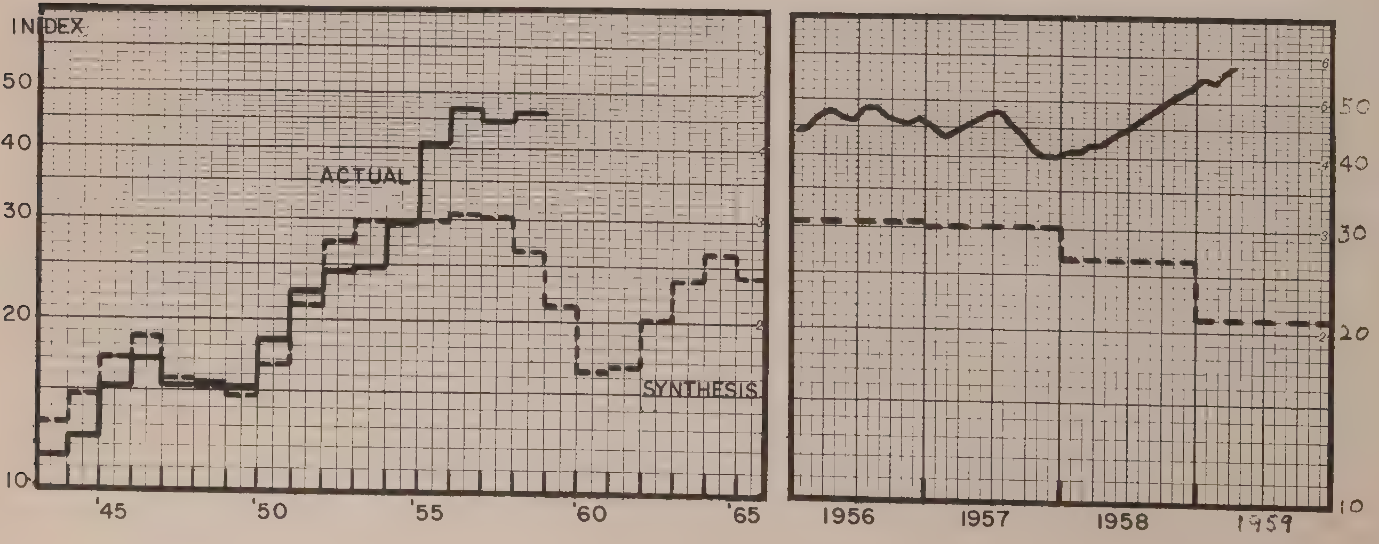
For those of you who are following any of the series we review from time to time in this section, the recent figures are reported below.

LATE FIGURES

Series	Unit	Month	Amount
Aluminum Production	Thousand tons	Feb	142.1p
Automobile Factory Sales	Thousand cars	Mar Apr	575 579p
Copper Prices—Electrolytic, New York	Cents per pound	Apr	31.30
Liabilities of Business Failures	Million dollars	Apr	71.9
Oats Prices—#3 White, Chicago	Cents per bushel	Apr	70.0
Residential Building Contracts	Million dollars	Mar	1,541
Stock Prices—Standard & Poor's Combined Index	1941-43=10	Apr	57.10
Sunspot Numbers	Numbers	Apr	159
Unemployment	Per cent	Apr	5.28

p - preliminary

STOCK PRICES



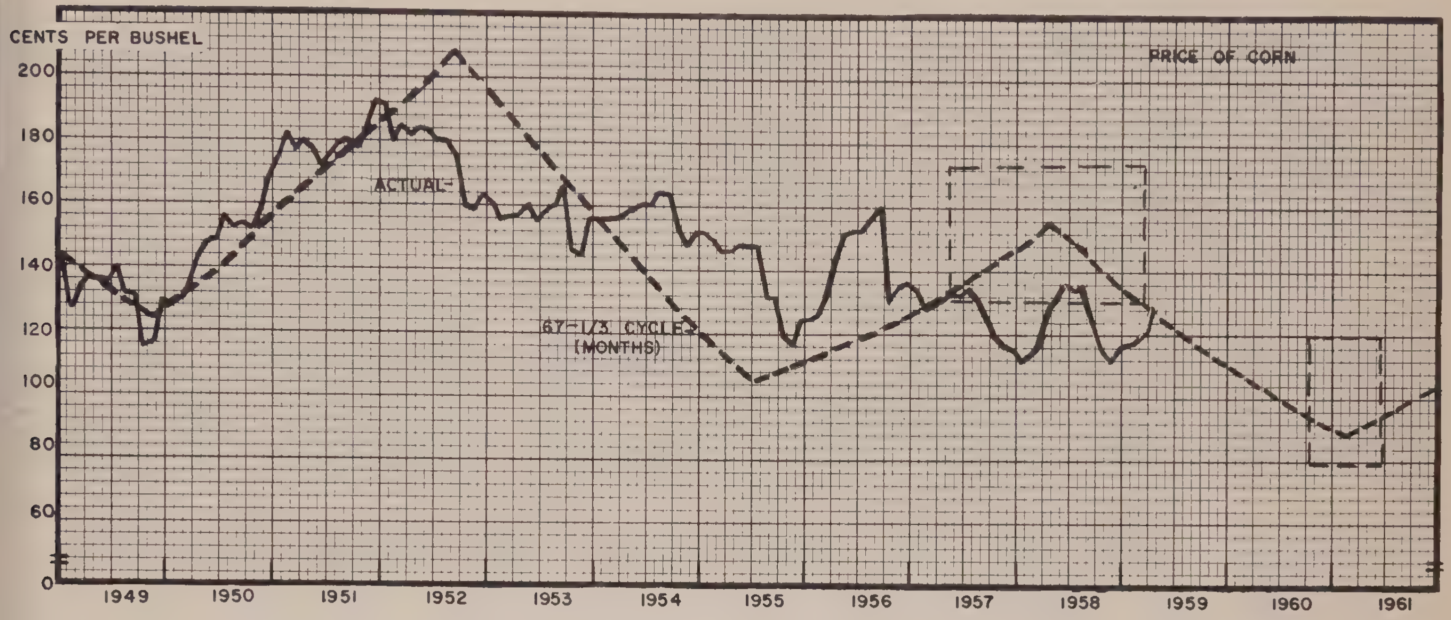
CORN PRICES

Until February 1961 the ideal 67 1/3-month cycle in the price of corn will be going down.

The box on the chart outlines the most probable limits within which the next actual low will lie. The odds are 6 to 4 that the price will be between $0.78 and $1.20, and 2 to 1 that the low price will come between October 1960 and June 1961.

Recent prices of No. 3 yellow corn at Chicago have been:

1959 - Mar 120.7 cents/bushel
Apr 128.3



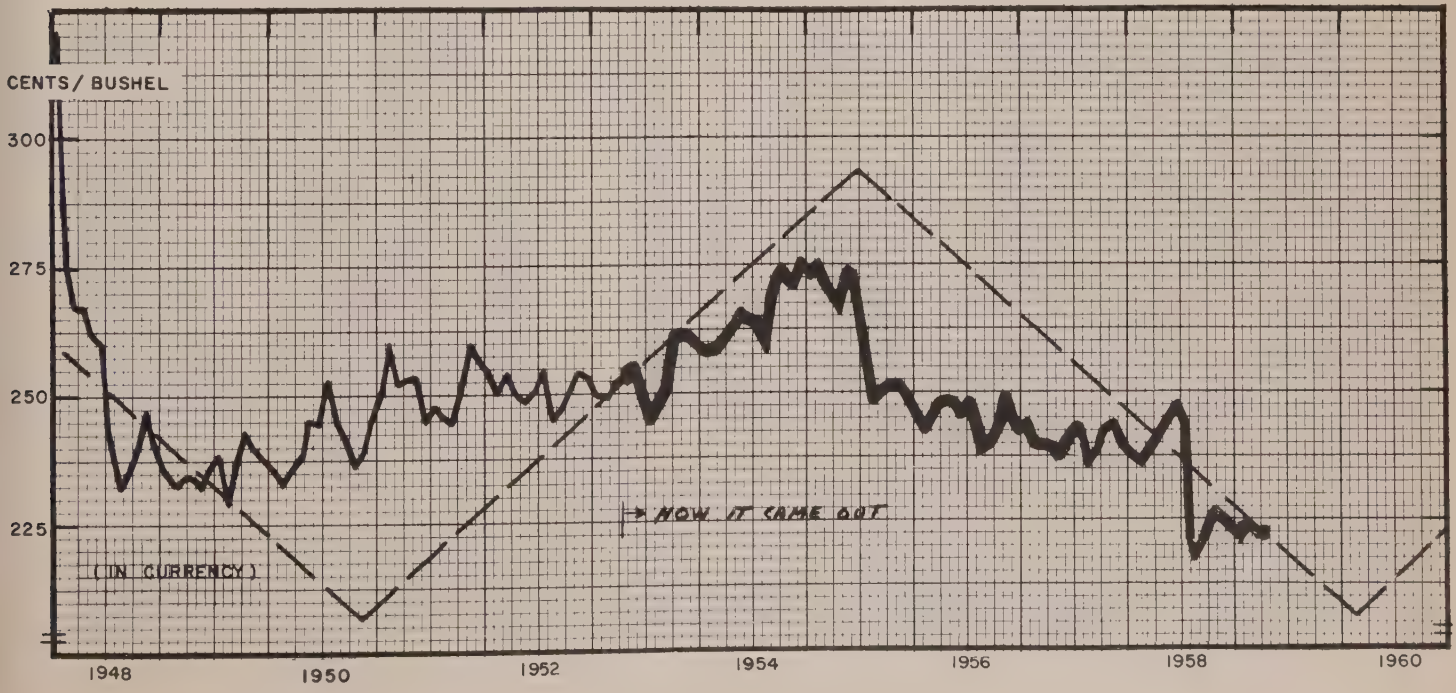
WHEAT PRICES

The 9.3-year cycle in the price of wheat, as shown by the broken line on the chart below, is now on the way down to a low due ideally at February 1960.

Based on the past record of this cycle, the odds are 7 to 2 that the price of wheat at that time will be below the July 1955 price of 268 cents per bushel.

Recent prices of wheat at Minneapolis have been:

1959 - Mar 221.1 cents/bushel
Apr 221.5



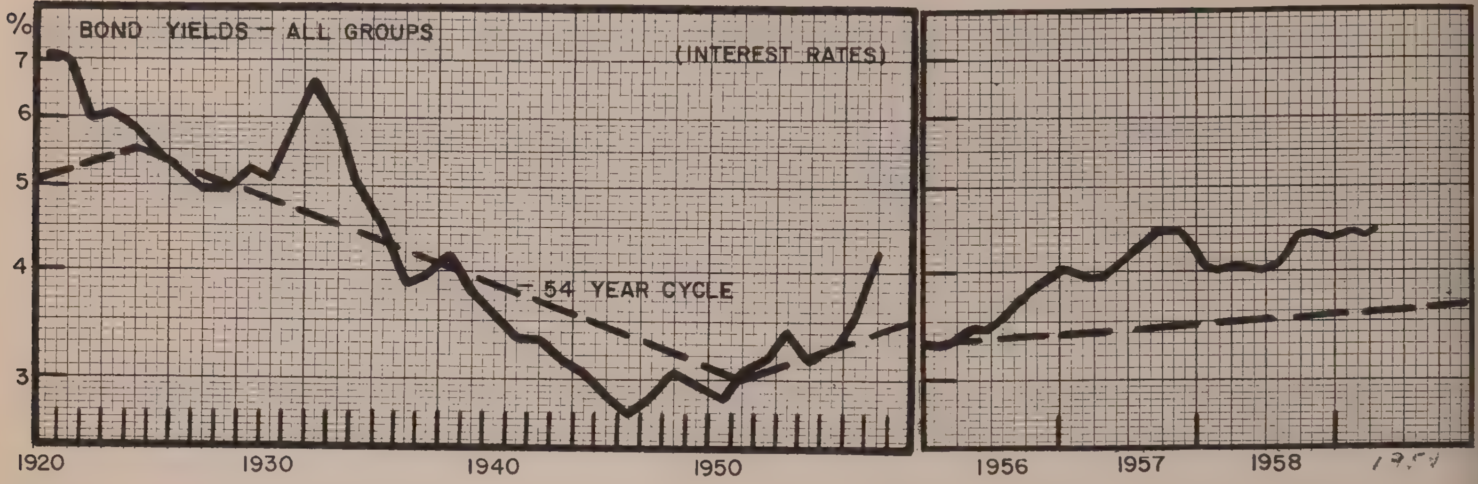
BOND YIELDS

The 54-year cycle in bond yields is going up at the present time and will continue up to about 1978. Of course the individual years will bounce around some.

The figures charted below are for all domestic corporations as prepared and published by Moody's.

Recent monthly figures are:

Feb	4.43%
Mar	4.40
Apr	4.45p



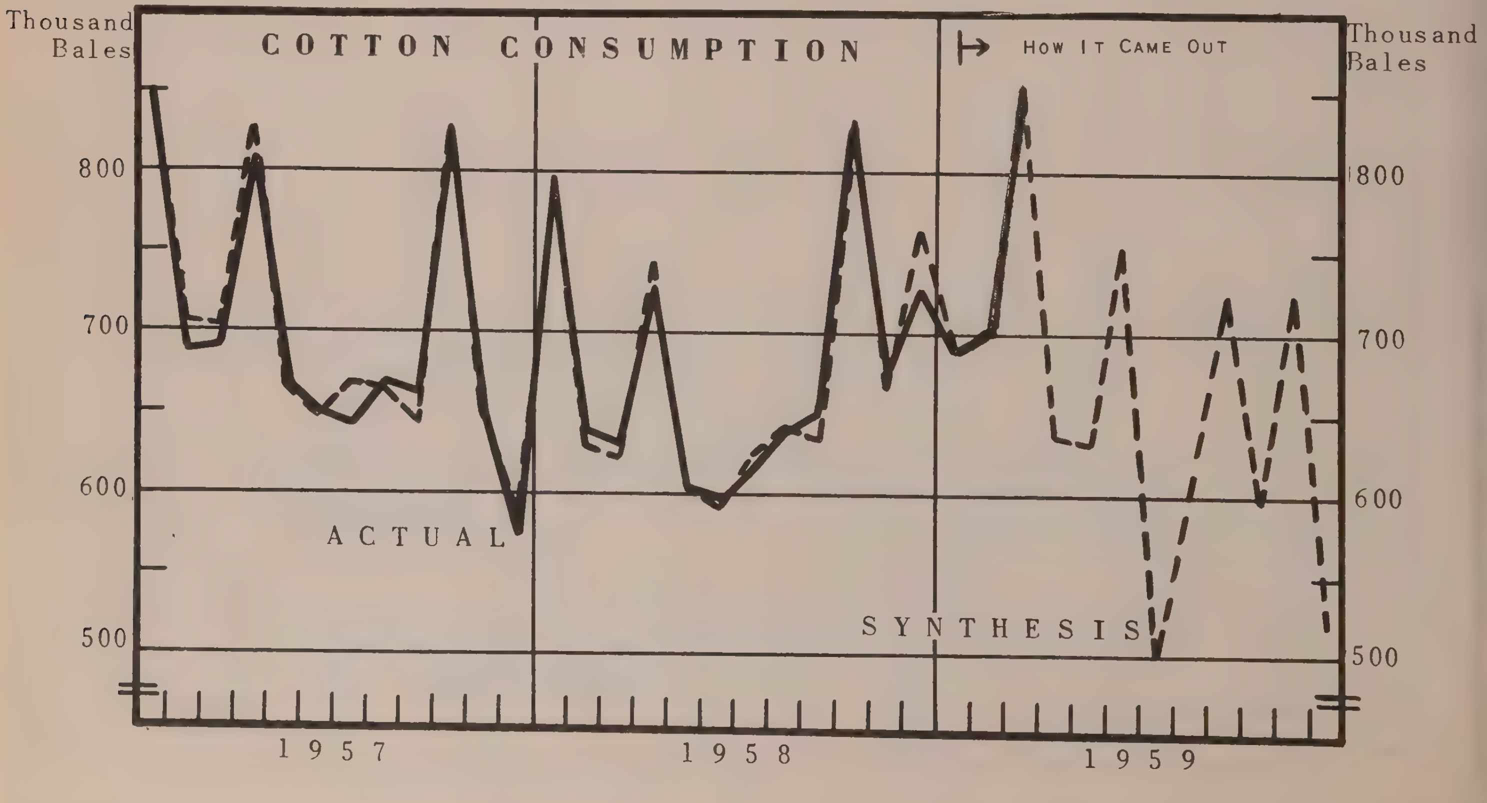
COTTON CONSUMPTION

Actual cotton consumption is compared on the chart to the combination (synthesis) of the 23.75-month cycle, the 12-month cycle, and the underlying trend.

Please refer to the story on page 155 for additional information about textile cycles.

Recent monthly figures for total cotton consumption are given below.

Jan	687 thousand bales
Feb	700
Mar	863



STEEL PRODUCTION

In the 1955 June-July report I discussed the 6-year cycle in steel production in the United States, 1867-1954.

I said, "The production of steel ingots and castings from 1867 through 1954 has been characterized by a 6-year rhythm."

The typical strength of this cycle was 9.6% above trend at time of ideal crest; 8.8% below trend at time of ideal trough. This means a typical rise of about 20% in three years from trough to crest; a typical fall of 16½% in three years from crest to trough due to this cycle alone. The next crest was due, ideally, midway between 1959 & 1960. I reminded you that the ideal merely expresses a *tendency,* just as the coldest day of the year *tends* to fall on February first--but usually doesn't.

I also mentioned that the 6-year cycle had faded out in the period 1890-1905, and that current behavior suggested that the cycle might be starting to fade again. I told you that, if so, we might expect three poor 6-year cycles, after which we might expect the 6-year cycle to reassert itself.

A cycle which gradually fades out and then reappears can result from the interaction of two cycles. I suspected such a situation in steel production.

I have no change to make in the findings, opinions, and conclusions of three years ago.

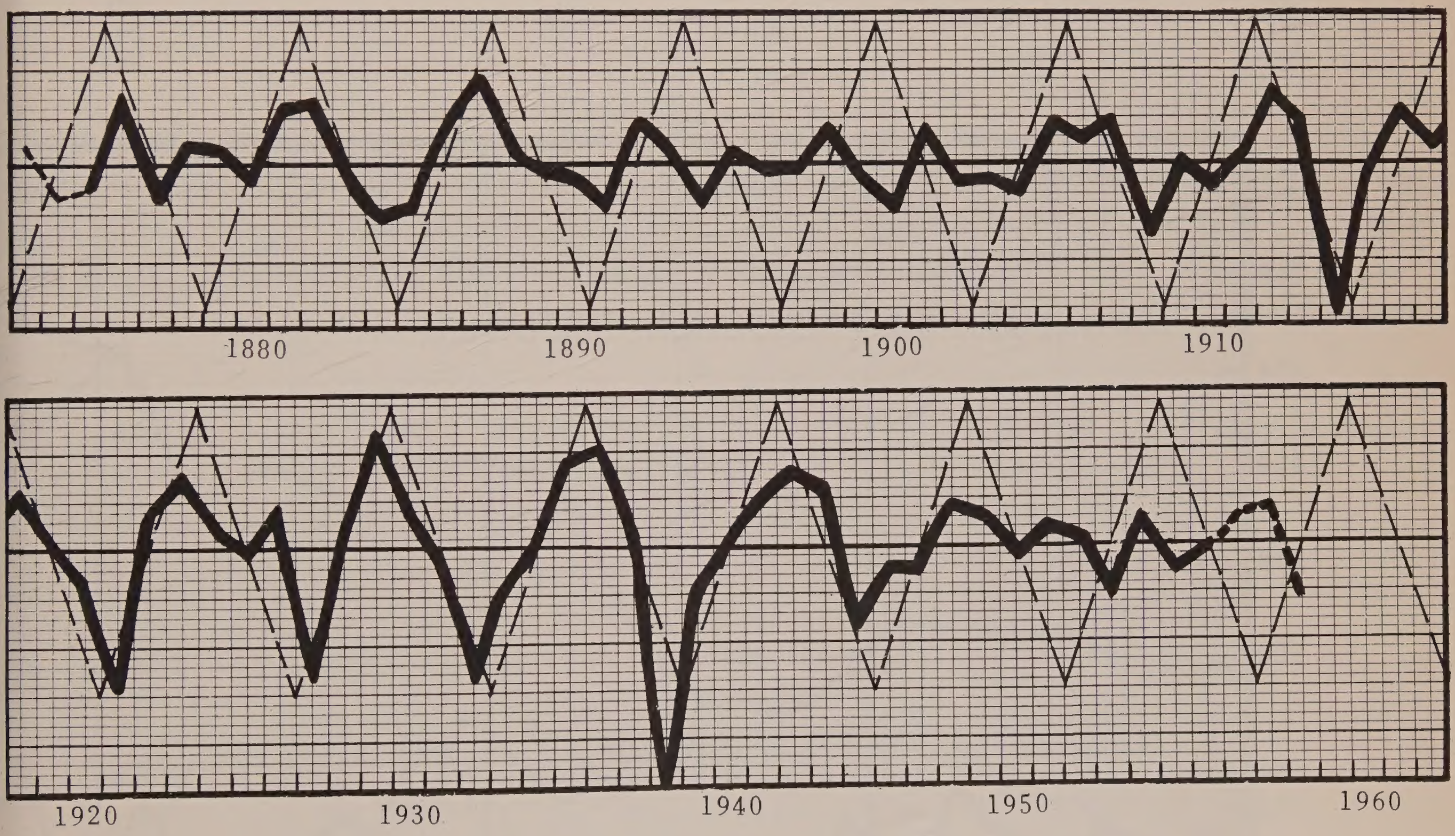
The 1955 article contained six charts. One of these, brought up to date, is reproduced below. You can see that the cycle was strong and clear through 1890, distorted and inconsequential 1891-1904, strong and clear 1905-1949. From 1949 to date it has again been weak and distorted.

This cycle in steel production should not be used for forecasting until it reappears, clearly and strongly. We should continue to watch it, however, so as to be Johnny-on-the-spot when this happens. With more study, it may even be possible to foretell when this will occur.

About the chart: First of all we removed a 6-year moving average trend. Next, to minimize randoms, we averaged every consecutive pair of 6-year cycles. The results are charted below at the time of the second cycle.

Such a computation has no effect upon any 6-year cycle that may be present; it does minimize other cycles and randoms.

E. R. D.



The 6-Year Cycle in Steel Production

This chart shows a two-6-year section moving average of steel production, with a 6-year moving average trend removed.

The zigzag line diagrams a perfectly regular 6-year cycle.

Note that the cycle faded out from 1889 to 1905, and that, since 1949, it seems to be doing the same thing again. Until this cycle reasserts itself—perhaps about in the late sixties or early seventies—it should be merely watched.

The Geisinger Indicator

FORECAST

More things (tons, barrels, yards, etc.) were produced last month than ever before in this country. The Federal Reserve Board's seasonally adjusted Index of Industrial Production reached 149, the highest level in history.

The rate of increase in production as measured by the First Difference Indicator moved up slightly to 1.83 for March.

The Geisinger Indicator for January (September when advanced) continued to move slightly downward. The value for January was 2.20.

The Modified Geisinger Indicator also moved slightly downward in January (September when advanced) to 3.70.

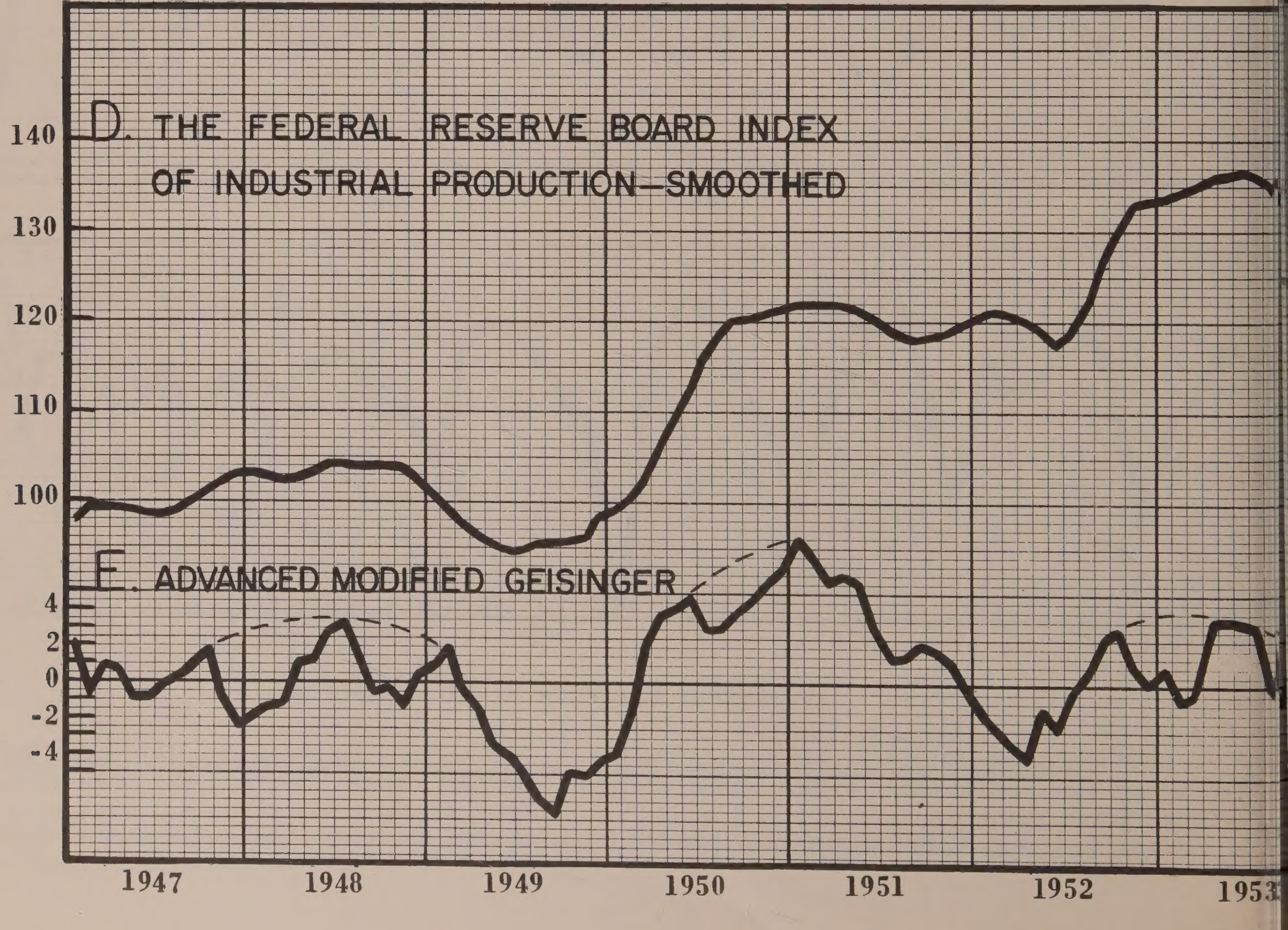
Thus, although actual production has continued to climb, the advance indicators have leveled off and are moving down a little month by month.

The fact that the Indicators have not turned *sharply* downward suggests that production will continue at a high level (unless there is a steel strike, of course); but the fact that the Indicators have turned over also suggests some leveling in production.

May 27, 1959 *E. R. Dewey*

Month	F.R.B. Index	Geisinger Indicator	First Difference Indicator	Modified Geisinger Indicator	Timing Advanced 8 Months
Nov -1958	141	3.2	1.66	4.86	1959 Jul
Dec	142	2.6	1.67	4.27	Aug
Jan-1959	143	2.2	1.50	3.70	Sep
Feb	145	*	1.50	*	Oct
Mar	147	*	1.83p	*	Nov
Apr	149p	*	*	*	Dec

p - preliminary * - not yet available



BACKGROUND

Explanation

The Modified Geisinger Indicator is an index which, in the past, has usually gone up and down ahead of the Federal Reserve Board Index of Industrial Production. The Modified Geisinger Indicator thus throws some light on the future.

The Modified Geisinger Indicator is the sum of the Geisinger Indicator and The First Difference Indicator.

The Geisinger Indicator was invented by Robert Geisinger. It is derived from figures which are published monthly in the **Survey of Current Business.** (Col. 2 of the table.)

The First Difference Indicator, is merely the amount by which the smoothed F. R. B. Index is above or below the value for the preceding month. It registers the *rate* of advance or decline. It has some forecasting value, too. (Col. 3 of the table.)

The sum of these two Indicators is the *Modified* Geisinger Indicator. (Col. 4 of the Table.) It is advanced by eight months and plotted as the bottom line of the chart.

The F. R. B. Index of Industrial Production measures physical production in the U. S. A. (Col. 1 of the Table.) It has nothing to do with stock prices.

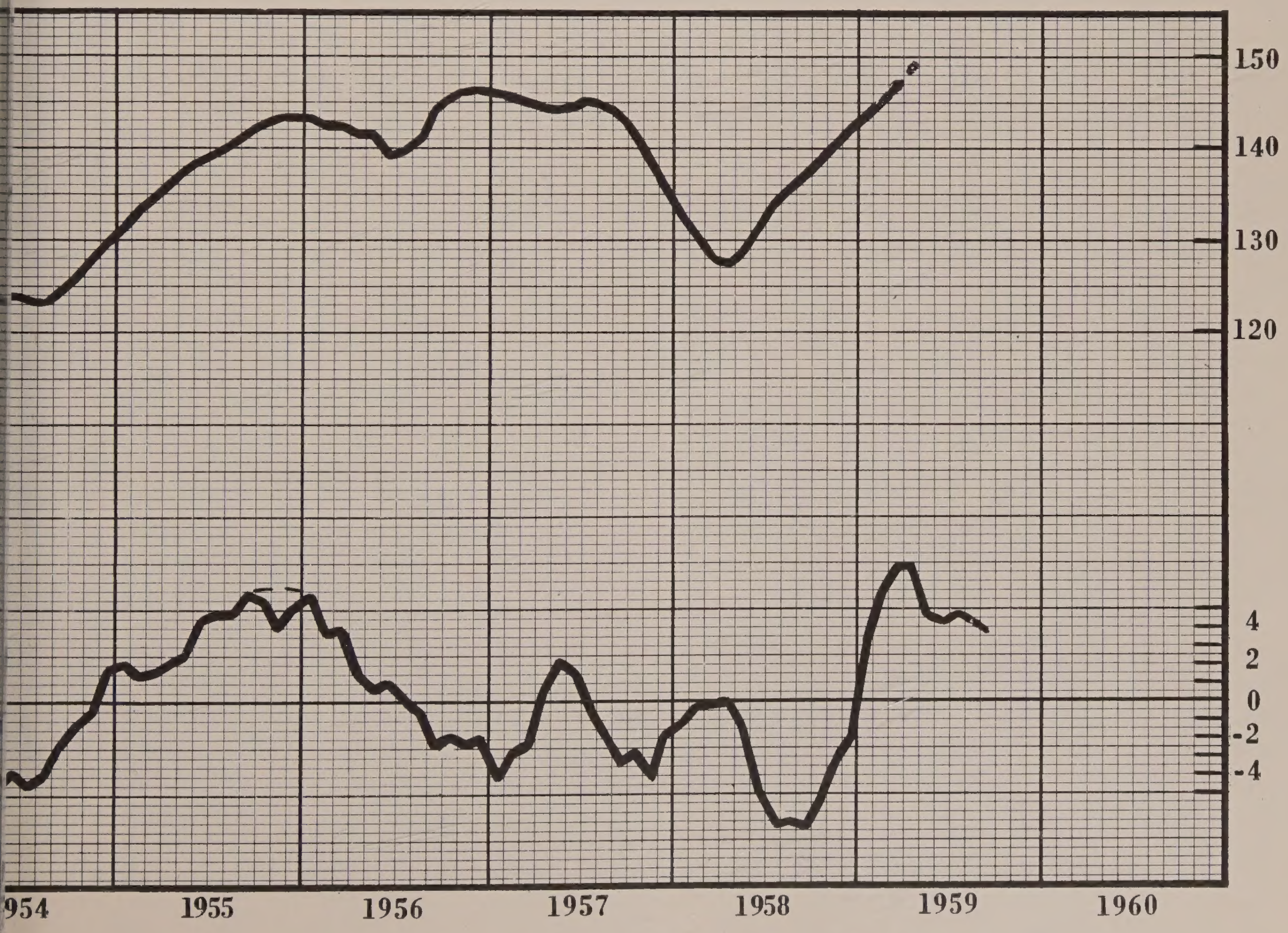
The smoothed values of the F. R. B. Index are plotted as the top line on the chart. It is smoothed by a 3-month moving average posted to the second position. The latest actual monthly Index of Production is recorded by a dot.

Interpretation

In the past, when the *Geisinger* Indicator going up, has cut 2, good business has followed; when, going down, it has cut 2, bad business has followed.

The important *turns* of the *Geisinger* Indicator and the *Modified* Geisinger Indicator often come 8 or 9 months before corresponding turns in Industrial Production. This fact gives some idea of what is around the corner. To help you to grope your way into tomorrow the Modified Geisinger Indicator is advanced 8 months. Where it is now, Industrial Production may soon be.

The degree to which the two curves correspond can be seen by inspection of the chart. The correspondence is general rather than specific. It is the broad sweep of the lines which is to be watched. The dashed lines which are added show how the eye should follow the Indicator.



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